# PHILIPS 25PT4455

MODEL

SERVICE MANUAL

**Colour Television** **Chassis**

# L9.1A

## AA 00.02

Service
Service
Service

# Service Information

GB

In the 21PT3942 and the two new 21” sets, 21PT3956 & 21PT3962, the mono-carrier PCB-layout L9.1A is introduced to increase the audio power.
Entering the SDM has changed. By connecting pin 20 to ground at cold start.
Entering the SAM has changed. Shorting pin M28 and M29 is no longer valid.

For the 21PT3942 one new panel is added:
- Side AV panel & Headphone (E1)

For the 21PT3956 & 21PT3962 two new panels are added:
- Side AV panel & Headphone (E1)
- Top Control RF (T)

For reference see Service Manual L9.2A - 4822 727 21704.

In the new 34” sets, 34PT4873 & 34PT4822, two new panels are introduced:
- Side AV panel & Headphone (E1)
- Top Control FSQ (T1)

For reference see Service Manual L9.1A - 4822 727 21705.

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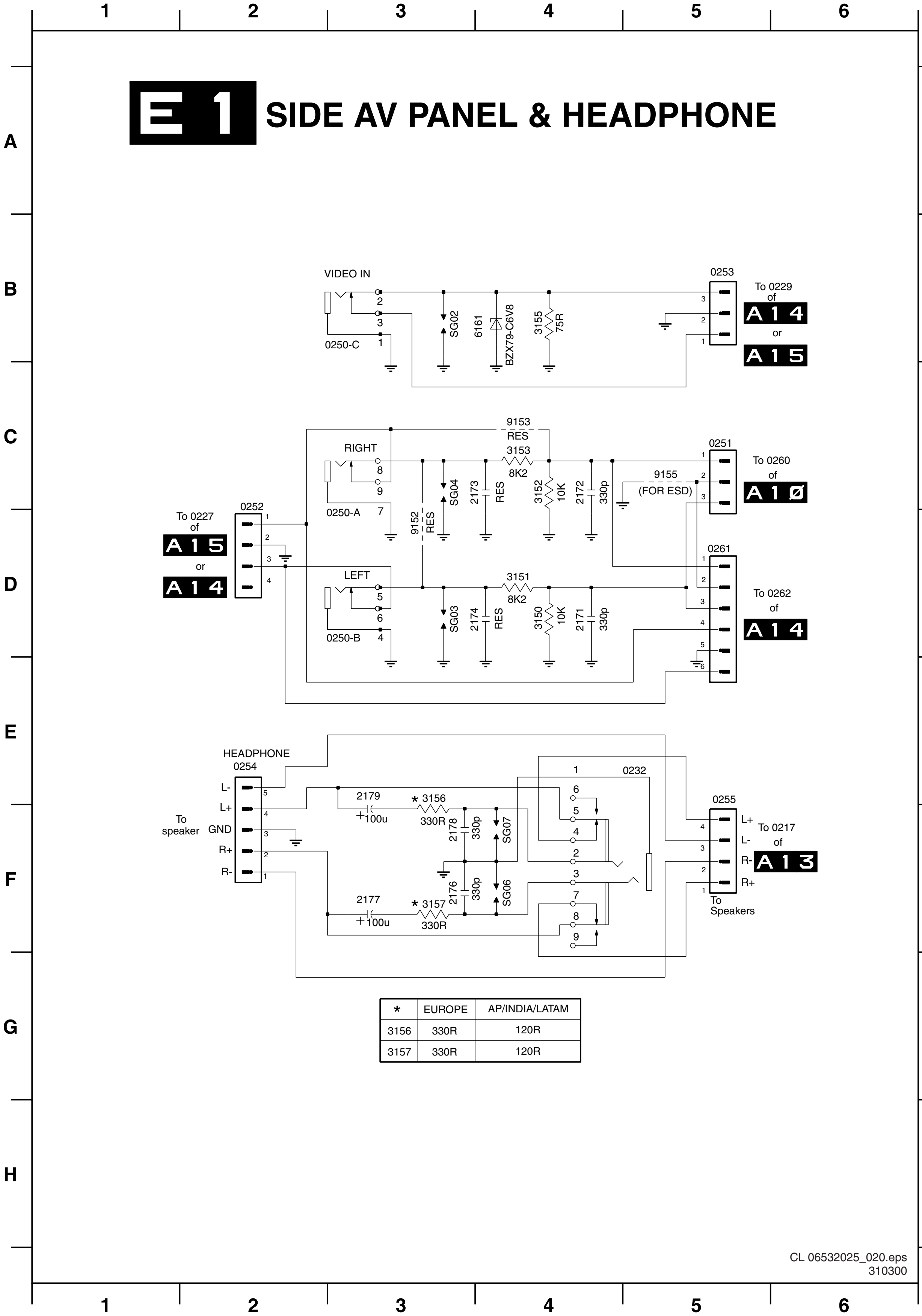
PHILIPS

# Electrical diagrams and PWB's

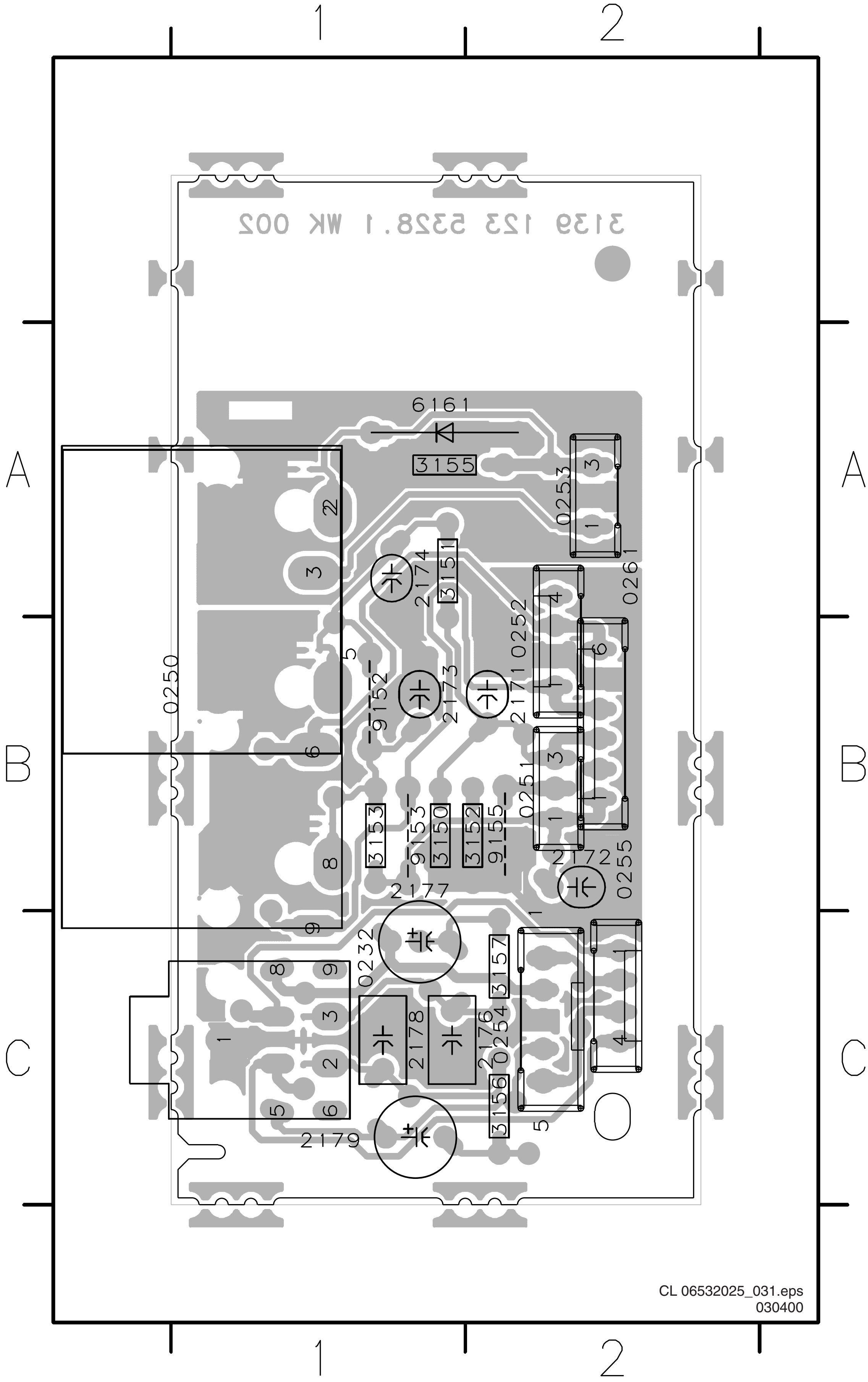
## Side AV panel & headphone


E 1
SIDE AV PANEL & HEADPHONE
1 2 3 4 5 6
A B C D E F G H
VIDEO IN
0250-C
SG02
6161
BZX79-C6V8
3155
75R
0253
To 0229
of
A 1 4
or
A 1 5
9153
RES
RIGHT
3153
8K2
0250-A
SG04
2173
RES
3152
10K
2172
330p
9155
(FOR ESD)
0251
To 0260
of
A 1 0
9152
RES
0252
To 0227
of
A 1 5
or
A 1 4
LEFT
3151
8K2
0250-B
SG03
2174
RES
3150
10K
2171
330p
0261
To 0262
of
A 1 4
HEADPHONE
0254
L-
L+
GND
R+
R-
To
speaker
2179
100u
* 3156
330R
2178
330p
SG07
2177
100u
* 3157
330R
2176
330p
SG06
0232
0255
L+
L-
R-
R+
To 0217
of
A 1 3
To
Speakers
CL 06532025_020.eps
310300

| * | EUROPE | AP/INDIA/LATAM |
|---|---|---|
| 3156 | 330R | 120R |
| 3157 | 330R | 120R |

| | |
|---|---|
| 0232 | E4 |
| 0250-A | C3 |
| 0250-B | D3 |
| 0250-C | B3 |
| 0251 | C5 |
| 0252 | D2 |
| 0253 | B5 |
| 0254 | E2 |
| 0255 | E5 |
| 0261 | D5 |
| 2171 | D4 |
| 2172 | C4 |
| 2173 | C4 |
| 2174 | D4 |
| 2176 | F3 |
| 2177 | F3 |
| 2178 | F3 |
| 2179 | E3 |
| 3150 | D4 |
| 3151 | D4 |
| 3152 | C4 |
| 3153 | C4 |
| 3155 | B4 |
| 3156 | E3 |
| 3157 | F3 |
| 6161 | B3 |
| 9152 | D3 |
| 9153 | C4 |
| 9155 | C5 |
| SG02 | B3 |
| SG03 | D3 |
| SG04 | C3 |
| SG06 | F4 |
| SG07 | F4 |

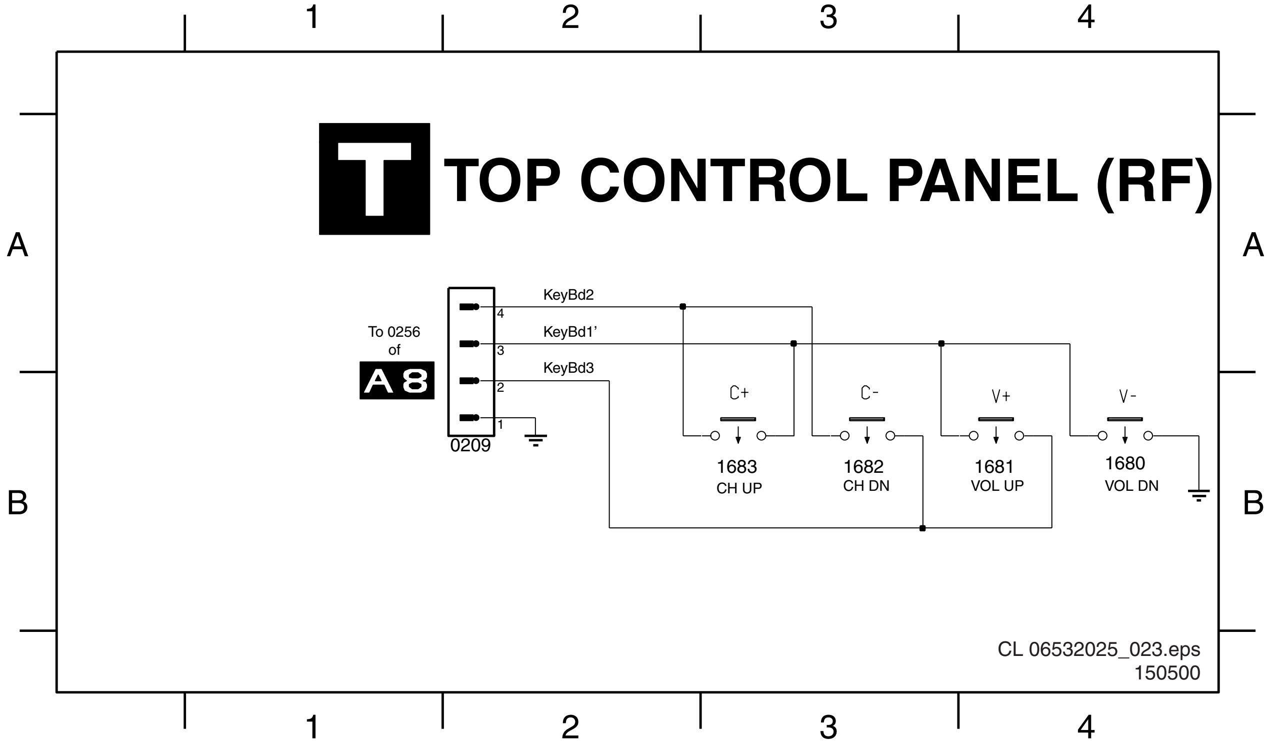
## Side AV panel & headphone


1
2
A
B
C
3139 123 5328.1 WK 002
6161
3155
0253
0261
0252
0250
2174
3151
2173
2171
9152
0251
3153
9153
3150
3152
9155
2172
0255
2177
0232
3157
2178
2176
0254
3156
2179

CL 06532025_031.eps
030400

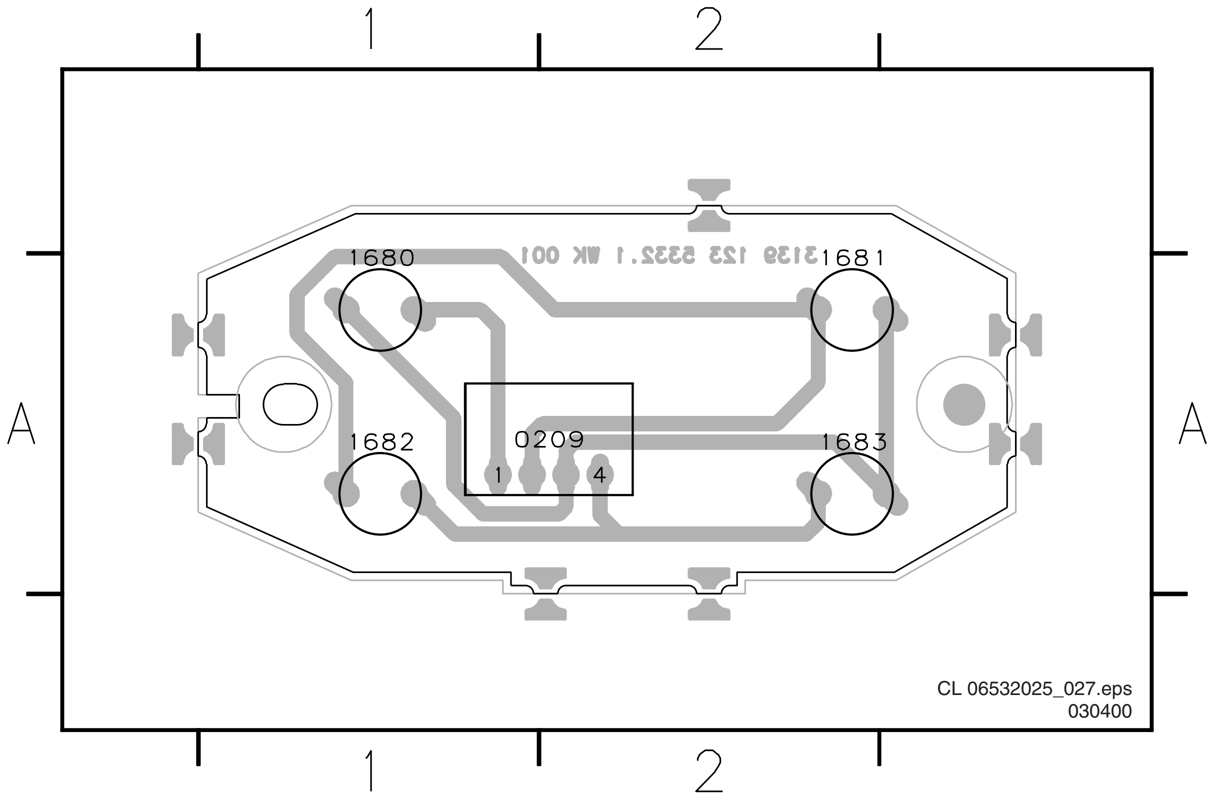
| | |
|---|---|
| 0232 | C1 |
| 0250 | B1 |
| 0251 | B2 |
| 0252 | B2 |
| 0253 | A2 |
| 0254 | C2 |
| 0255 | C2 |
| 0261 | B2 |
| 2171 | B2 |
| 2172 | B2 |
| 2173 | B1 |
| 2174 | A1 |
| 2176 | C1 |
| 2177 | C1 |
| 2178 | C1 |
| 2179 | C1 |
| 3150 | B1 |
| 3151 | A1 |
| 3152 | B2 |
| 3153 | B1 |
| 3155 | A1 |
| 3156 | C2 |
| 3157 | C2 |
| 6161 | A1 |
| 9152 | B1 |
| 9153 | B1 |
| 9155 | B2 |

## TOP control panel (RF)


T
TOP CONTROL PANEL (RF)
1
2
3
4
A
B
To 0256
of
A8
0209
4
3
2
1
KeyBd2
KeyBd1'
KeyBd3
C+
C-
V+
V-
1683
CH UP
1682
CH DN
1681
VOL UP
1680
VOL DN
CL 06532025_023.eps
150500

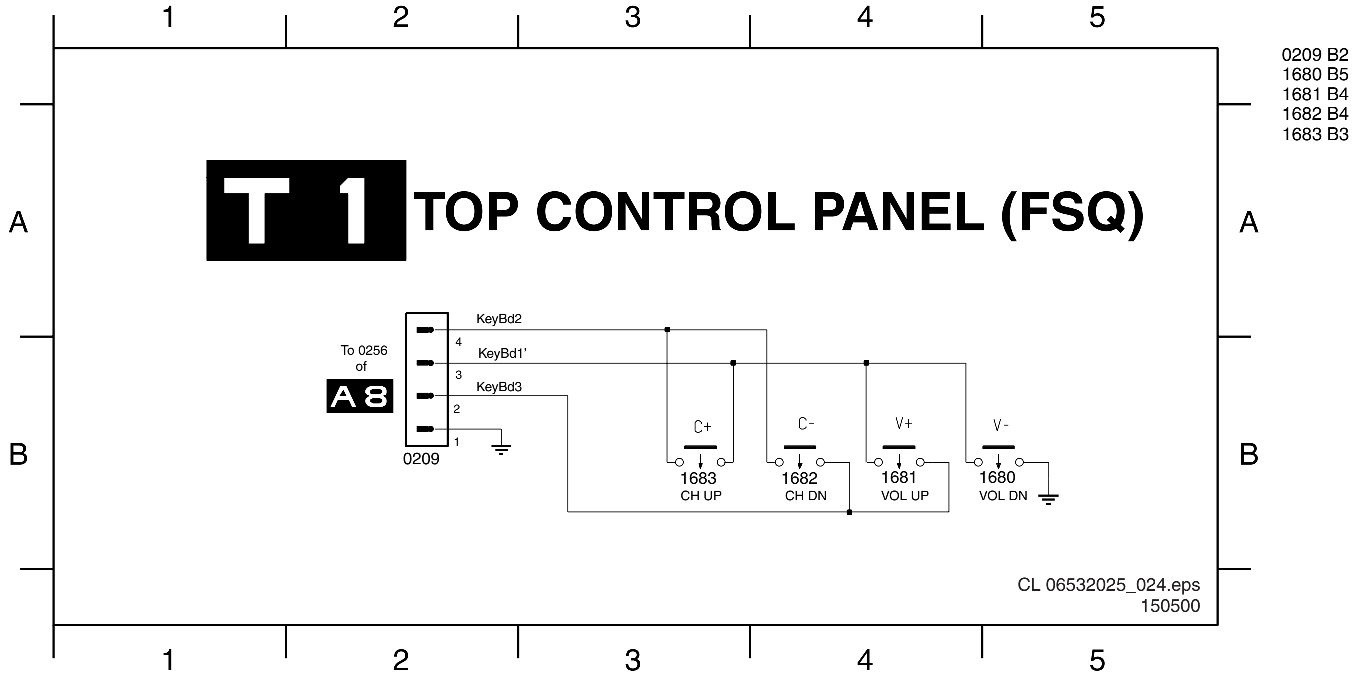
| | |
|---|---|
| 0209 | B2 |
| 1680 | B4 |
| 1681 | B4 |
| 1682 | B3 |
| 1683 | B3 |

## TOP control panel (RF)

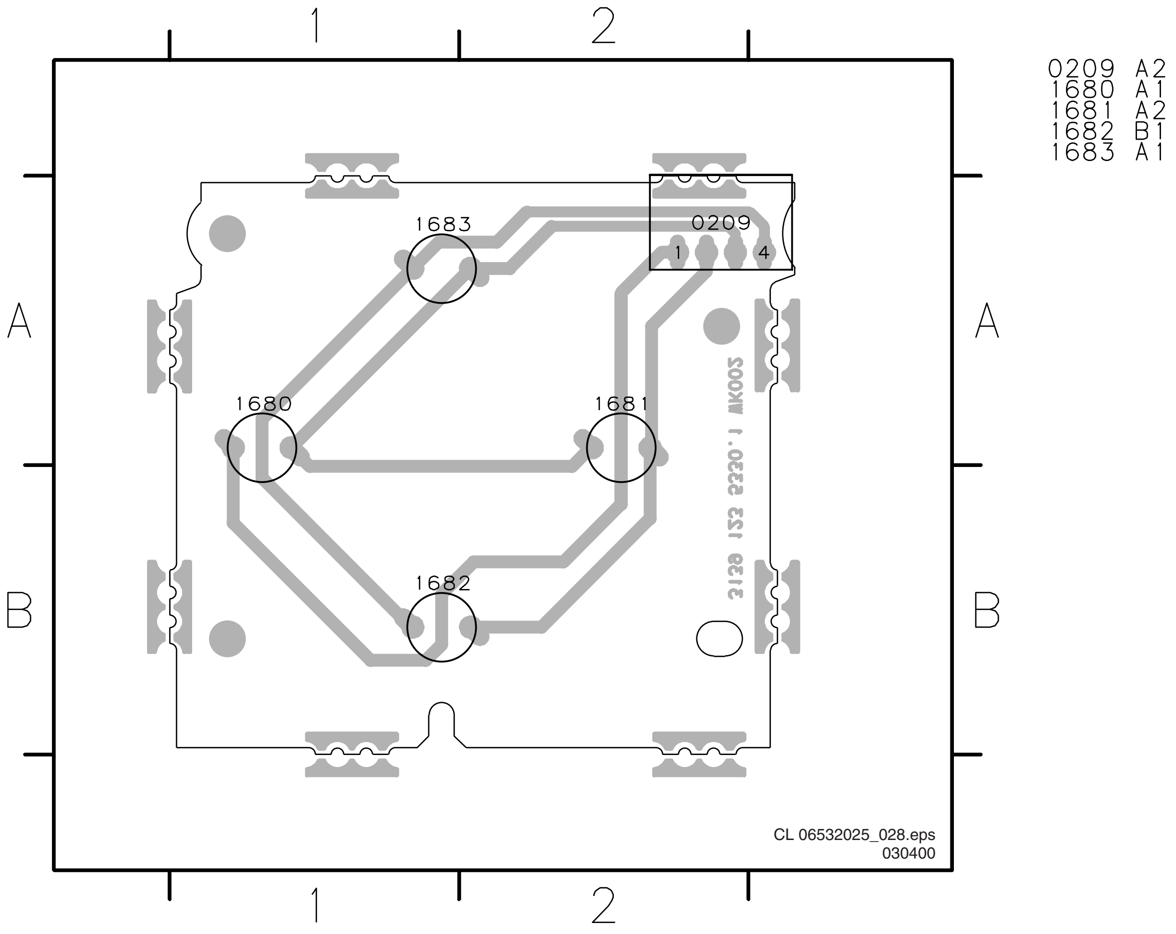

1
2
A
1680
1681
1682
1683
0209
1
4
3139 123 5332.1 WK 001
CL 06532025_027.eps
030400

| | |
|---|---|
| 0209 | A2 |
| 1680 | A1 |
| 1681 | A2 |
| 1682 | A1 |
| 1683 | A2 |

## TOP control panel (FSQ)


1
2
3
4
5
A
B
0209 B2
1680 B5
1681 B4
1682 B4
1683 B3
T 1
TOP CONTROL PANEL (FSQ)
To 0256
of
A8
KeyBd2
KeyBd1'
KeyBd3
4
3
2
1
0209
C+
C-
V+
V-
1683
CH UP
1682
CH DN
1681
VOL UP
1680
VOL DN
CL 06532025_024.eps
150500

## TOP control panel (FSQ)


1
2
A
B
0209 A2
1680 A1
1681 A2
1682 B1
1683 A1
1683
0209
1
4
1680
1681
1682
3139 123 5550.1 MK005
CL 06532025_028.eps
030400

# Spare parts list

## [E] Side AV Panel

### Various

| | | |
|---|---|---|
| 0021▲ | 3139 124 33221 | Side AV Bracket |
| 0232▲ | 4822 267 31014 | Headphone Socket |
| 0250 | 4822 265 11606 | 3P YKC21-5599 |
| 0253 | 4822 267 10735 | Conn. 3P |
| 0254 | 4822 267 10734 | Conn. 5P |
| 0255 | 4822 267 10565 | Conn. 4P |
| 0261 | 2422 025 12482 | Conn. 6P |

### ⊣⊢

| | | |
|---|---|---|
| 2171 | 4822 126 13512 | 330pF 10% 50V |
| 2172 | 4822 126 13512 | 330pF 10% 50V |
| 2173 | 4822 126 13512 | 330pF 10% 50V |
| 2174 | 4822 126 13512 | 330pF 10% 50V |
| 2176 | 4822 126 13512 | 330pF 10% 50V |
| 2177 | 4822 124 40207 | 100µF 20% 25V |
| 2178 | 4822 126 13512 | 330pF 10% 50V |
| 2179 | 4822 124 40207 | 100µF 20% 25V |

### -▭-

| | | |
|---|---|---|
| 3150 | 4822 050 21003 | 10k 1% 0.6W |
| 3151 | 4822 116 52303 | 8k2 5% 0.5W |
| 3152 | 4822 050 21003 | 10k 1% 0.6W |
| 3153 | 4822 116 52303 | 8k2 5% 0.5W |
| 3155 | 4822 116 52201 | 75Ω 5% 0.5W |
| 3156 | 4822 116 52219 | 330Ω 5% 0.5W |
| 3157 | 4822 116 52219 | 330Ω 5% 0.5W |

### ▶|

| | | |
|---|---|---|
| 6161 | 4822 130 34278 | BZX79-B6V8 |

## [T] Top Control Panel (RF)

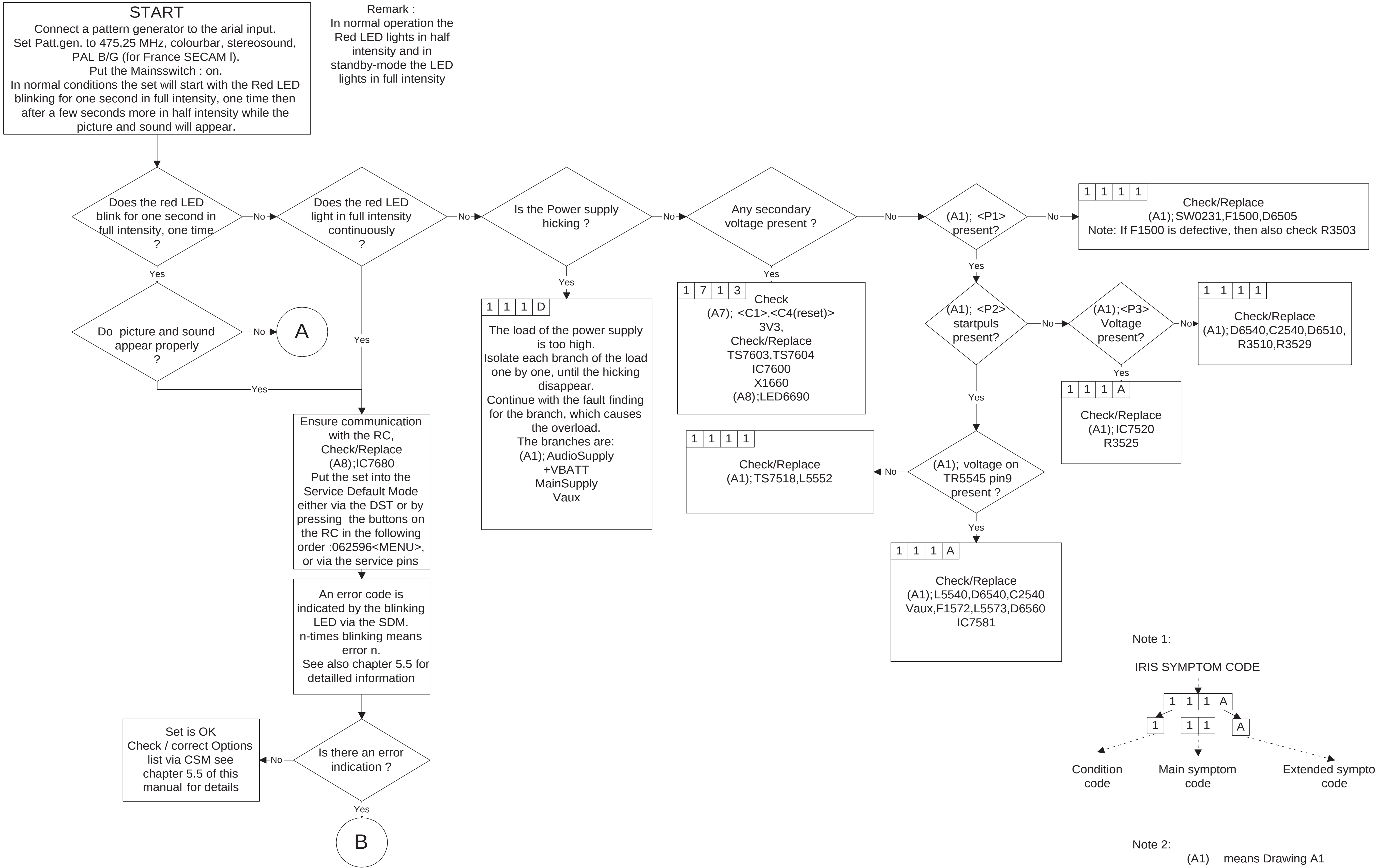
### Various

| | | |
|---|---|---|
| 0011 | 3139 137 66921 | Top Control Button |
| 0013 | 3139 124 30381 | Top Control Bracket |
| 0158 | 3139 110 38741 | Cable 4P 820mm |
| 0209 | 4822 267 10567 | Conn. 4P |
| 1680 | 4822 276 13775 | Switch |
| 1681 | 4822 276 13775 | Switch |
| 1682 | 4822 276 13775 | Switch |
| 1683 | 4822 276 13775 | Switch |

## [T1] Top Control Panel (FSQ)

### Various

| | | |
|---|---|---|
| 0011 | 3139 137 76961 | Top Control Assy |
| 0158 | 3139 110 38741 | Cable 4P 820mm |
| 0209 | 4822 267 10567 | Conn. 4P |
| 0310 | 3139 124 26992 | Top Control Bracket |
| 1680 | 4822 276 13775 | Switch |
| 1681 | 4822 276 13775 | Switch |
| 1682 | 4822 276 13775 | Switch |
| 1683 | 4822 276 13775 | Switch |


START
Connect a pattern generator to the arial input.
Set Patt.gen. to 475,25 MHz, colourbar, stereosound, PAL B/G (for France SECAM l).
Put the Mainsswitch : on.
In normal conditions the set will start with the Red LED blinking for one second in full intensity, one time then after a few seconds more in half intensity while the picture and sound will appear.
Remark : In normal operation the Red LED lights in half intensity and in standby-mode the LED lights in full intensity
Does the red LED blink for one second in full intensity, one time ?
No
Yes
Do picture and sound appear properly ?
No
A
Yes
Does the red LED light in full intensity continuously ?
No
Yes
Ensure communication with the RC, Check/Replace (A8);IC7680 Put the set into the Service Default Mode either via the DST or by pressing the buttons on the RC in the following order :062596<MENU>, or via the service pins
An error code is indicated by the blinking LED via the SDM. n-times blinking means error n. See also chapter 5.5 for detailled information
Is there an error indication ?
No
Set is OK Check / correct Options list via CSM see chapter 5.5 of this manual for details
Yes
B
Is the Power supply hicking ?
No
Yes
1 1 1 D
The load of the power supply is too high. Isolate each branch of the load one by one, until the hicking disappear. Continue with the fault finding for the branch, which causes the overload. The branches are: (A1);AudioSupply +VBATT MainSupply Vaux
Any secondary voltage present ?
No
Yes
1 7 1 3
Check (A7); <C1>,<C4(reset)> 3V3, Check/Replace TS7603,TS7604 IC7600 X1660 (A8);LED6690
(A1); <P1> present?
No
1 1 1 1
Check/Replace (A1);SW0231,F1500,D6505 Note: If F1500 is defective, then also check R3503
Yes
(A1); <P2> startpuls present?
No
(A1);<P3> Voltage present?
No
1 1 1 1
Check/Replace (A1);D6540,C2540,D6510, R3510,R3529
Yes
1 1 1 A
Check/Replace (A1);IC7520 R3525
Yes
(A1); voltage on TR5545 pin9 present ?
No
1 1 1 1
Check/Replace (A1);TS7518,L5552
Yes
1 1 1 A
Check/Replace (A1);L5540,D6540,C2540 Vaux,F1572,L5573,D6560 IC7581
IRIS SYMPTOM CODE
1 1 1 A
1
1 1
A
Condition code
Main symptom code
Extended symptom code

Note 1:

Note 2:

(A1) means Drawing A1
<P1> means Test point P1

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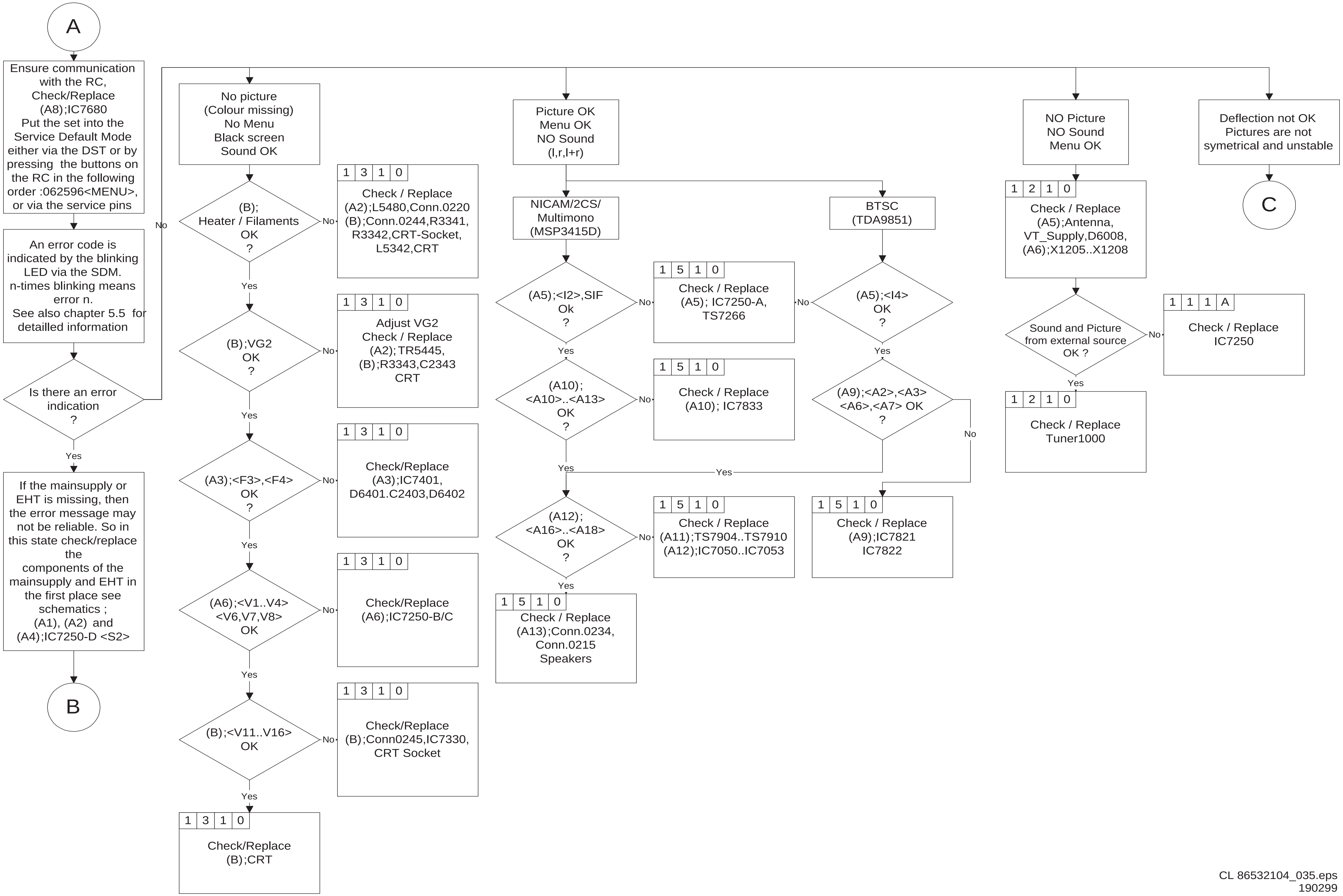
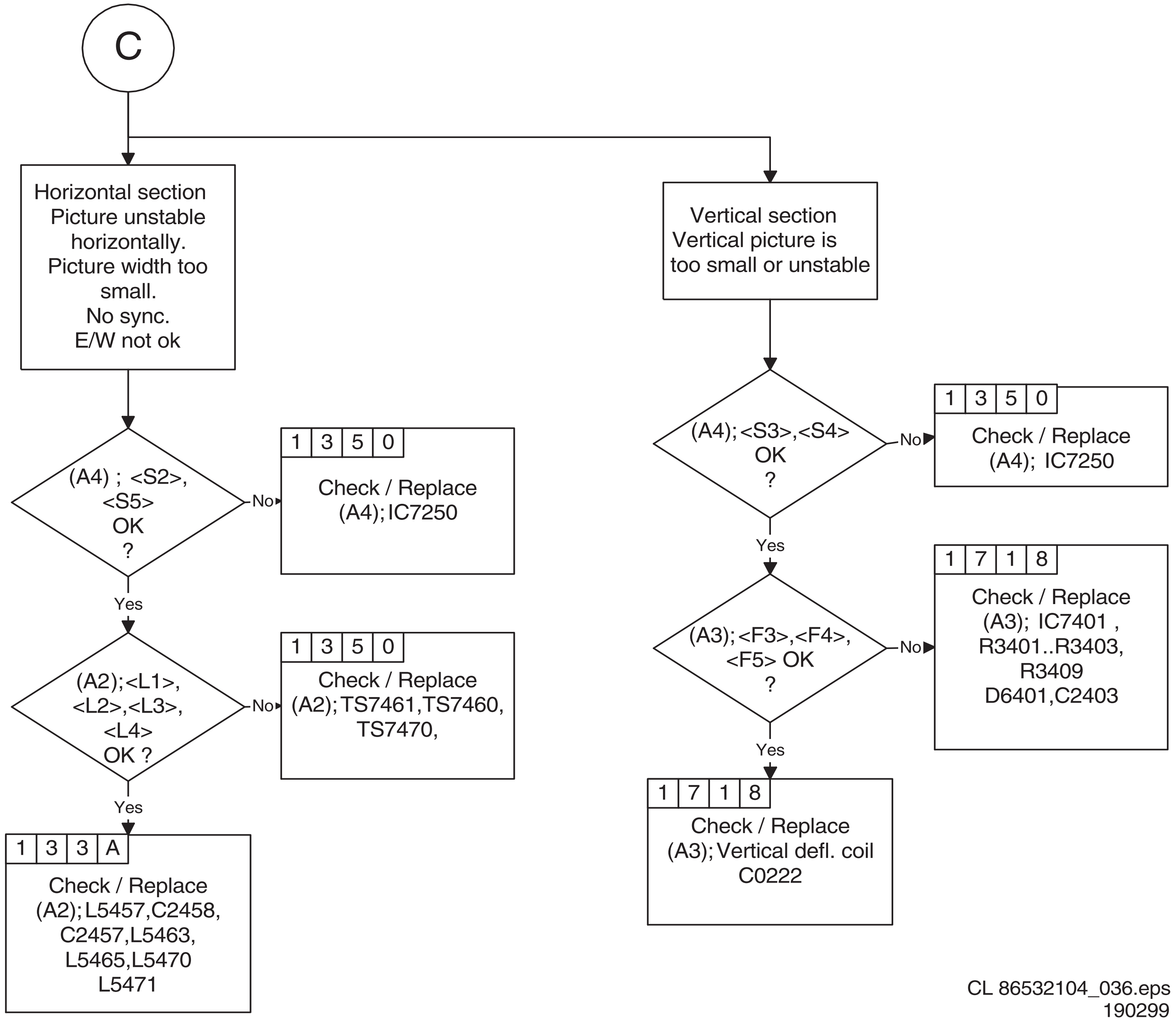
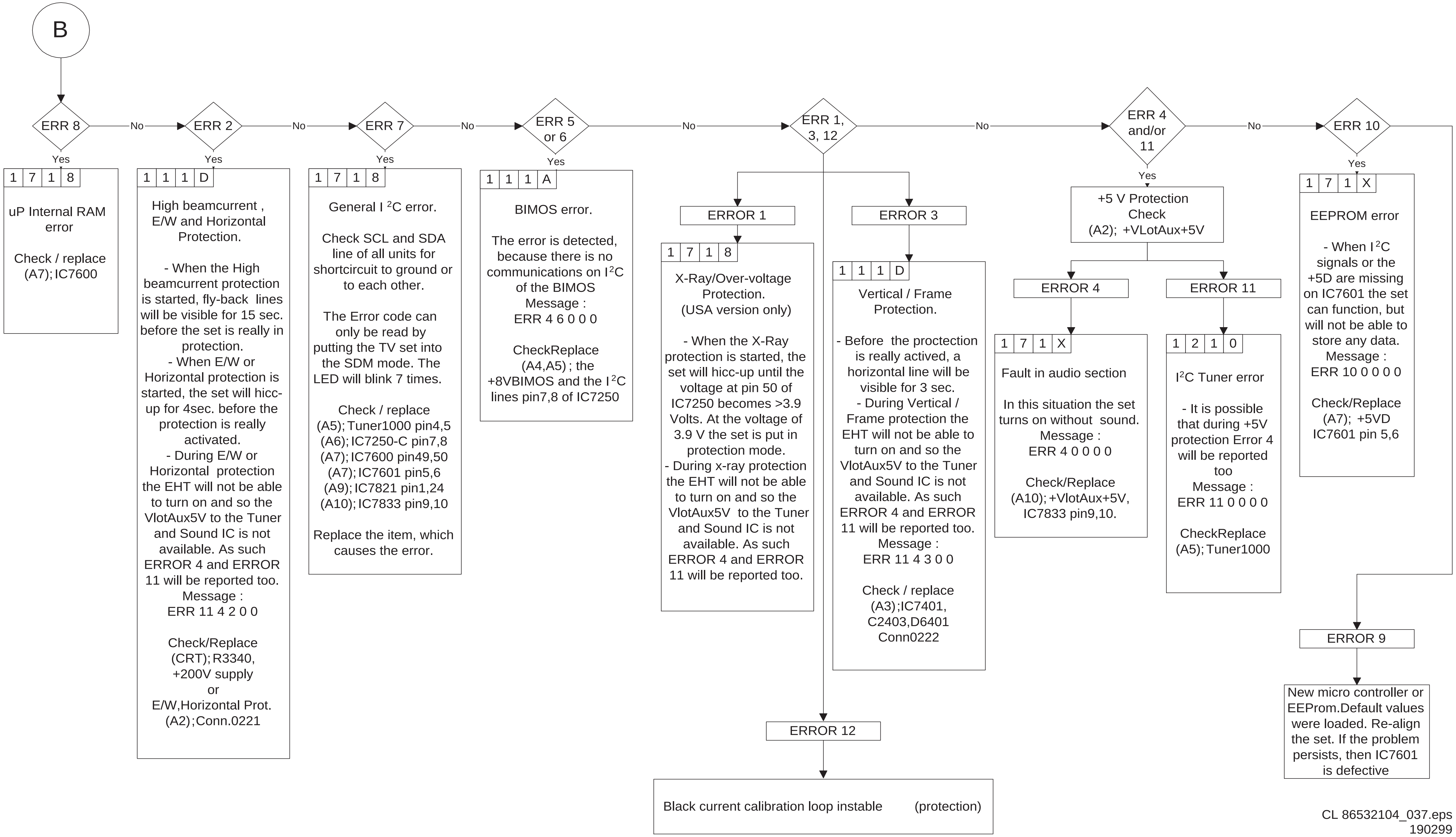
190299


A
Ensure communication with the RC, Check/Replace (A8);IC7680 Put the set into the Service Default Mode either via the DST or by pressing the buttons on the RC in the following order :062596<MENU>, or via the service pins
An error code is indicated by the blinking LED via the SDM. n-times blinking means error n. See also chapter 5.5 for detailled information
Is there an error indication ?
No
Yes
If the mainsupply or EHT is missing, then the error message may not be reliable. So in this state check/replace the components of the mainsupply and EHT in the first place see schematics ; (A1), (A2) and (A4);IC7250-D <S2>
B
No picture (Colour missing) No Menu Black screen Sound OK
(B); Heater / Filaments OK ?
No
1 3 1 0
Check / Replace (A2);L5480,Conn.0220 (B);Conn.0244,R3341, R3342,CRT-Socket, L5342,CRT
Yes
(B);VG2 OK ?
No
1 3 1 0
Adjust VG2 Check / Replace (A2);TR5445, (B);R3343,C2343 CRT
Yes
(A3);<F3>,<F4> OK ?
No
1 3 1 0
Check/Replace (A3);IC7401, D6401.C2403,D6402
Yes
(A6);<V1..V4> <V6,V7,V8> OK
No
1 3 1 0
Check/Replace (A6);IC7250-B/C
Yes
(B);<V11..V16> OK
No
1 3 1 0
Check/Replace (B);Conn0245,IC7330, CRT Socket
Yes
1 3 1 0
Check/Replace (B);CRT
Picture OK Menu OK NO Sound (l,r,l+r)
NICAM/2CS/ Multimono (MSP3415D)
BTSC (TDA9851)
(A5);<I2>,SIF Ok ?
No
1 5 1 0
Check / Replace (A5); IC7250-A, TS7266
No
(A5);<I4> OK ?
Yes
(A10); <A10>..<A13> OK ?
No
1 5 1 0
Check / Replace (A10); IC7833
Yes
(A9);<A2>,<A3> <A6>,<A7> OK ?
No
Yes
Yes
(A12); <A16>..<A18> OK ?
No
1 5 1 0
Check / Replace (A11);TS7904..TS7910 (A12);IC7050..IC7053
1 5 1 0
Check / Replace (A9);IC7821 IC7822
Yes
1 5 1 0
Check / Replace (A13);Conn.0234, Conn.0215 Speakers
NO Picture NO Sound Menu OK
1 2 1 0
Check / Replace (A5);Antenna, VT_Supply,D6008, (A6);X1205..X1208
Sound and Picture from external source OK ?
No
1 1 1 A
Check / Replace IC7250
Yes
1 2 1 0
Check / Replace Tuner1000
Deflection not OK Pictures are not symetrical and unstable
C

CL 86532104_035.eps
190299


C
Horizontal section
Picture unstable horizontally.
Picture width too small.
No sync.
E/W not ok
(A4) ; <S2>, <S5> OK ?
No
1 3 5 0
Check / Replace (A4); IC7250
Yes
(A2); <L1>, <L2>, <L3>, <L4> OK ?
No
1 3 5 0
Check / Replace (A2); TS7461, TS7460, TS7470,
Yes
1 3 3 A
Check / Replace (A2); L5457, C2458, C2457, L5463, L5465, L5470 L5471
Vertical section
Vertical picture is too small or unstable
(A4); <S3>, <S4> OK ?
No
1 3 5 0
Check / Replace (A4); IC7250
Yes
(A3); <F3>, <F4>, <F5> OK ?
No
1 7 1 8
Check / Replace (A3); IC7401 , R3401..R3403, R3409 D6401, C2403
Yes
1 7 1 8
Check / Replace (A3); Vertical defl. coil C0222

CL 86532104_036.eps
190299



uP Internal RAM error

Check / replace (A7); IC7600

High beamcurrent , E/W and Horizontal Protection.

- When the High beamcurrent protection is started, fly-back lines will be visible for 15 sec. before the set is really in protection.
- When E/W or Horizontal protection is started, the set will hicc-up for 4sec. before the protection is really activated.
- During E/W or Horizontal protection the EHT will not be able to turn on and so the VlotAux5V to the Tuner and Sound IC is not available. As such ERROR 4 and ERROR 11 will be reported too.

Message : ERR 11 4 2 0 0

Check/Replace (CRT); R3340, +200V supply or E/W,Horizontal Prot. (A2); Conn.0221

General I$^2$C error.

Check SCL and SDA line of all units for shortcircuit to ground or to each other.

The Error code can only be read by putting the TV set into the SDM mode. The LED will blink 7 times.

Check / replace (A5); Tuner1000 pin4,5 (A6); IC7250-C pin7,8 (A7); IC7600 pin49,50 (A7); IC7601 pin5,6 (A9); IC7821 pin1,24 (A10); IC7833 pin9,10

Replace the item, which causes the error.

BIMOS error.

The error is detected, because there is no communications on I$^2$C of the BIMOS

Message : ERR 4 6 0 0 0

CheckReplace (A4,A5) ; the +8VBIMOS and the I$^2$C lines pin7,8 of IC7250

X-Ray/Over-voltage Protection. (USA version only)

- When the X-Ray protection is started, the set will hicc-up until the voltage at pin 50 of IC7250 becomes >3.9 Volts. At the voltage of 3.9 V the set is put in protection mode.
- During x-ray protection the EHT will not be able to turn on and so the VlotAux5V to the Tuner and Sound IC is not available. As such ERROR 4 and ERROR 11 will be reported too.

Vertical / Frame Protection.

- Before the proctection is really actived, a horizontal line will be visible for 3 sec.
- During Vertical / Frame protection the EHT will not be able to turn on and so the VlotAux5V to the Tuner and Sound IC is not available. As such ERROR 4 and ERROR 11 will be reported too.

Message : ERR 11 4 3 0 0

Check / replace (A3);IC7401, C2403,D6401 Conn0222

+5 V Protection Check (A2); +VLotAux+5V

Fault in audio section

In this situation the set turns on without sound.

Message : ERR 4 0 0 0 0

Check/Replace (A10); +VlotAux+5V, IC7833 pin9,10.

I$^2$C Tuner error

- It is possible that during +5V protection Error 4 will be reported too

Message : ERR 11 0 0 0 0

CheckReplace (A5); Tuner1000

EEPROM error

- When I$^2$C signals or the +5D are missing on IC7601 the set can function, but will not be able to store any data.

Message : ERR 10 0 0 0 0

Check/Replace (A7); +5VD IC7601 pin 5,6

Black current calibration loop instable (protection)

New micro controller or EEProm.Default values were loaded. Re-align the set. If the problem persists, then IC7601 is defective

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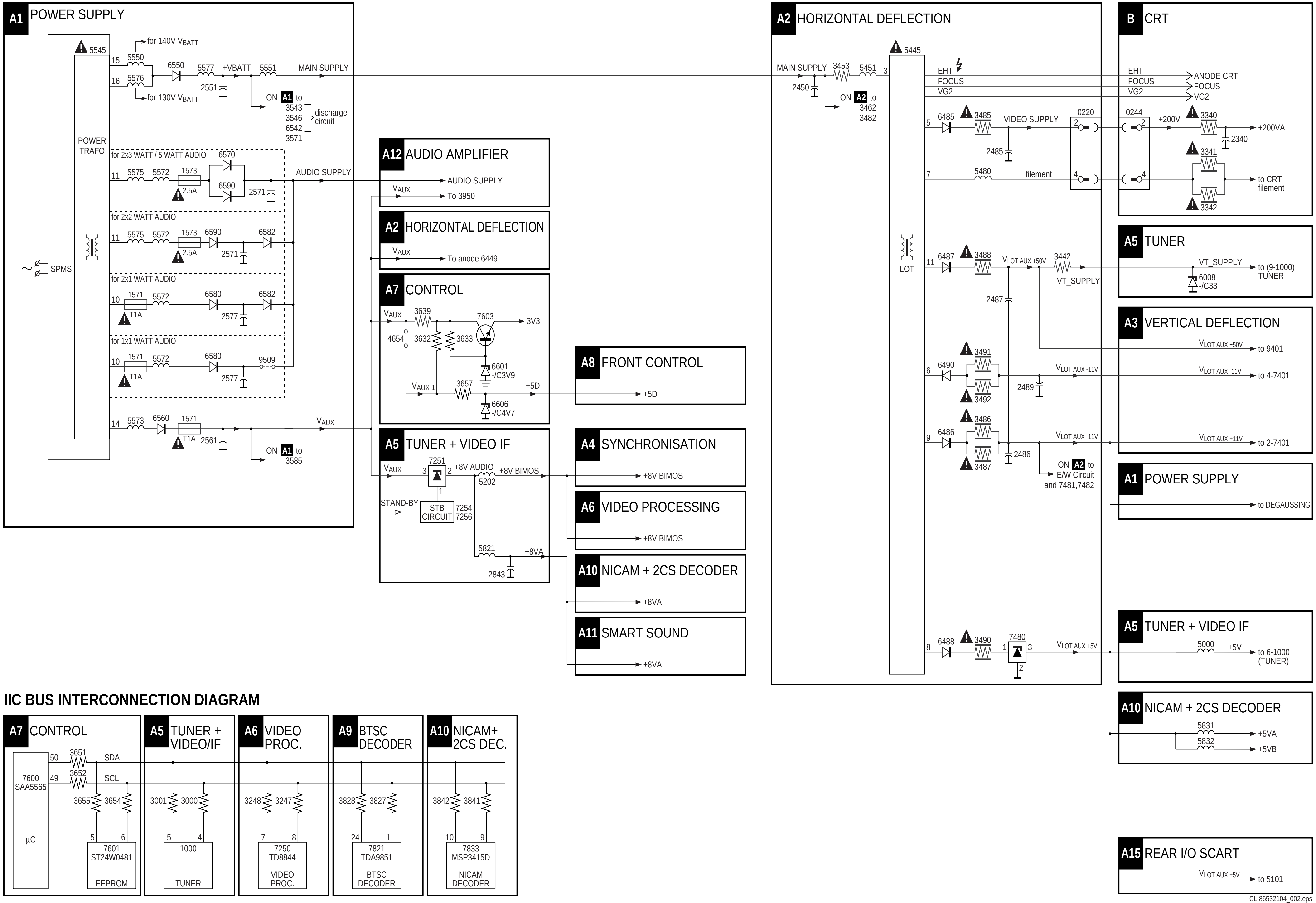
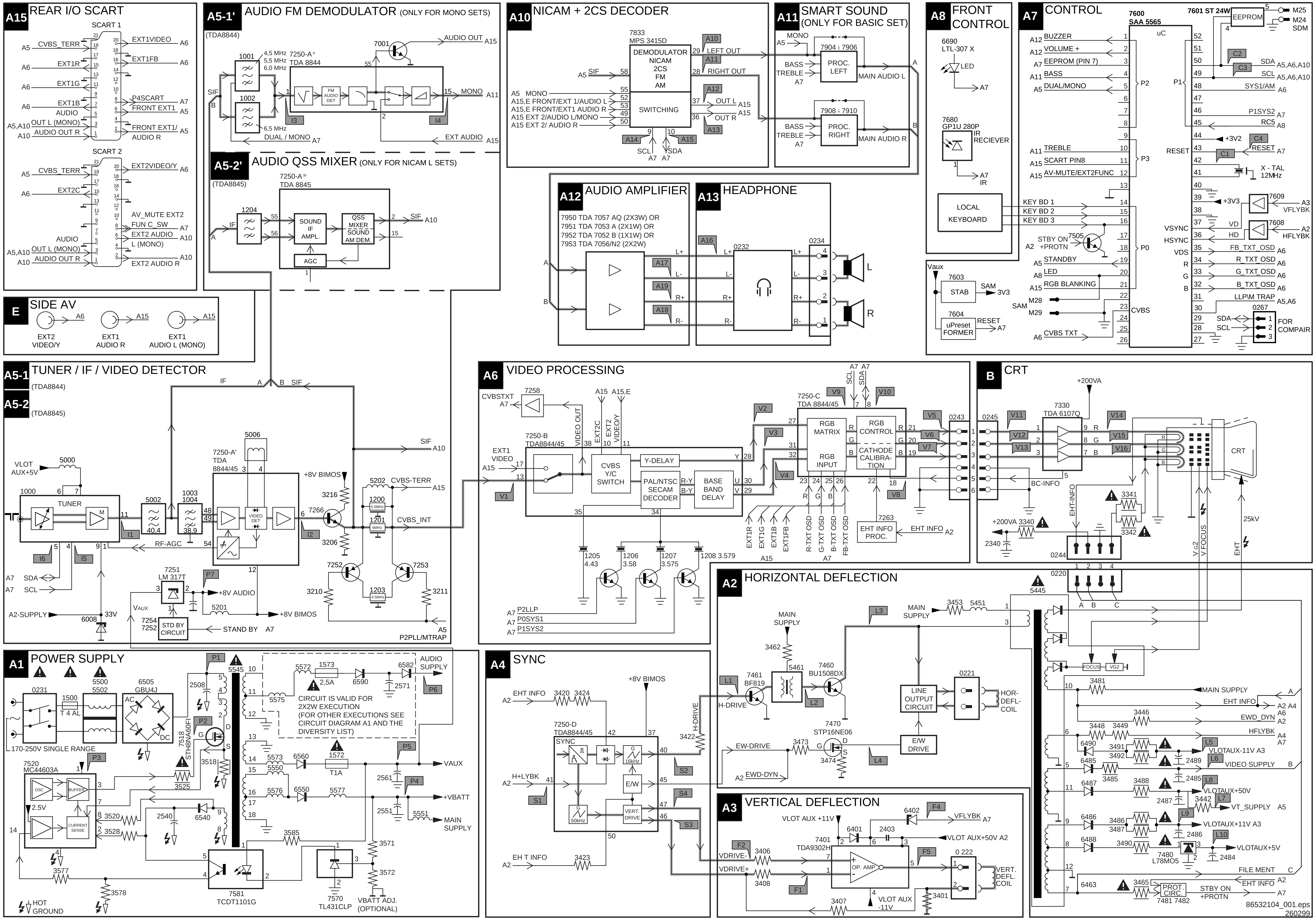
190299


A1 POWER SUPPLY
SPMS
POWER TRAFO
5545
5550
5576
for 140V VBATT
for 130V VBATT
6550
5577
+VBATT
5551
2551
MAIN SUPPLY
ON A1 to 3543 3546 6542 3571 discharge circuit
for 2x3 WATT / 5 WATT AUDIO
5575
5572
1573
2.5A
6570
6590
2571
AUDIO SUPPLY
for 2x2 WATT AUDIO
6582
for 2x1 WATT AUDIO
1571
T1A
6580
2577
for 1x1 WATT AUDIO
9509
5573
6560
2561
VAUX
ON A1 to 3585
A12 AUDIO AMPLIFIER
AUDIO SUPPLY
To 3950
A2 HORIZONTAL DEFLECTION
To anode 6449
A7 CONTROL
3639
7603
3V3
4654
3632
3633
6601 -/C3V9
VAUX-1
3657
+5D
6606 -/C4V7
A5 TUNER + VIDEO IF
7251
+8V AUDIO
+8V BIMOS
5202
STAND-BY
STB CIRCUIT
7254 7256
5821
+8VA
2843
A8 FRONT CONTROL
+5D
A4 SYNCHRONISATION
+8V BIMOS
A6 VIDEO PROCESSING
+8V BIMOS
A10 NICAM + 2CS DECODER
+8VA
A11 SMART SOUND
+8VA
A2 HORIZONTAL DEFLECTION
MAIN SUPPLY
3453
5451
2450
ON A2 to 3462 3482
5445
LOT
EHT
FOCUS
VG2
6485
3485
VIDEO SUPPLY
2485
0220
5480
filement
6487
3488
VLOT AUX +50V
3442
VT_SUPPLY
2487
6490
3491
3492
VLOT AUX -11V
2489
6486
3486
3487
2486
ON A2 to E/W Circuit and 7481,7482
6488
3490
7480
VLOT AUX +5V
B CRT
EHT
FOCUS
VG2
ANODE CRT
0244
+200V
3340
2340
+200VA
3341
3342
to CRT filement
A5 TUNER
VT_SUPPLY
6008 -/C33
to (9-1000) TUNER
A3 VERTICAL DEFLECTION
VLOT AUX +50V
to 9401
VLOT AUX -11V
to 4-7401
VLOT AUX +11V
to 2-7401
A1 POWER SUPPLY
to DEGAUSSING
A5 TUNER + VIDEO IF
5000
+5V
to 6-1000 (TUNER)
A10 NICAM + 2CS DECODER
5831
+5VA
5832
+5VB
A15 REAR I/O SCART
VLOT AUX +5V
to 5101
A7 CONTROL
7600 SAA5565
µC
3651
3652
SDA
SCL
3655
3654
7601 ST24W0481
EEPROM
A5 TUNER + VIDEO/IF
3001
3000
1000
TUNER
A6 VIDEO PROC.
3248
3247
7250 TD8844
VIDEO PROC.
A9 BTSC DECODER
3828
3827
7821 TDA9851
BTSC DECODER
A10 NICAM+ 2CS DEC.
3842
3841
7833 MSP3415D
NICAM DECODER

## IIC BUS INTERCONNECTION DIAGRAM

# 6 Fault finding trees, diagrams and overviews


A15 REAR I/O SCART
SCART 1
CVBS_TERR
EXT1R
EXT1G
EXT1B
AUDIO OUT L (MONO)
AUDIO OUT R
EXT1VIDEO
EXT1FB
P4SCART
FRONT EXT1
FRONT EXT1/ AUDIO R
SCART 2
EXT2C
AV_MUTE EXT2
FUN C_SW
EXT2 AUDIO L (MONO)
EXT2 AUDIO R
EXT2VIDEO/Y
A5-1' AUDIO FM DEMODULATOR (ONLY FOR MONO SETS)
(TDA8844)
7250-A TDA 8844
4,5 MHz
5,5 MHz
6,0 MHz
6,5 MHz
FM AUDIO DET
AUDIO OUT
MONO
DUAL / MONO
EXT AUDIO
A5-2' AUDIO QSS MIXER (ONLY FOR NICAM L SETS)
(TDA8845)
7250-A TDA 8845
SOUND IF AMPL.
QSS MIXER SOUND AM DEM.
AGC
SIF
A10 NICAM + 2CS DECODER
7833 MPS 3415D
DEMODULATOR NICAM 2CS FM AM
SWITCHING
LEFT OUT
RIGHT OUT
OUT L
OUT R
A5 MONO
A15,E FRONT/EXT 1/AUDIO L
A15,E FRONT/EXT1 AUDIO R
A15 EXT 2/AUDIO L/MONO
A15 EXT 2/ AUDIO R
SCL
SDA
A11 SMART SOUND (ONLY FOR BASIC SET)
7904 : 7906
PROC. LEFT
7908 : 7910
PROC. RIGHT
BASS
TREBLE
MAIN AUDIO L
MAIN AUDIO R
A8 FRONT CONTROL
6690 LTL-307 X
LED
7680 GP1U 280P
IR RECIEVER
LOCAL KEYBOARD
A7 CONTROL
7600 SAA 5565
uC
7601 ST 24W
EEPROM
BUZZER
VOLUME +
EEPROM (PIN 7)
BASS
DUAL/MONO
TREBLE
SCART PIN8
AV-MUTE/EXT2FUNC
KEY BD 1
KEY BD 2
KEY BD 3
STBY ON +PROTN
STANDBY
LED
RGB BLANKING
CVBS TXT
SDA
SCL
SYS1/AM
P1SYS2
RC5
RESET
X - TAL 12MHz
VSYNC
HSYNC
VDS
FB_TXT_OSD
R_TXT_OSD
G_TXT_OSD
B_TXT_OSD
LLP\M TRAP
FOR COMPAIR
7603 STAB
SAM 3V3
7604 uPreset FORMER
A12 AUDIO AMPLIFIER
7950 TDA 7057 AQ (2X3W) OR
7951 TDA 7053 A (2X1W) OR
7952 TDA 7052 B (1X1W) OR
7953 TDA 7056/N2 (2X2W)
A13 HEADPHONE
E SIDE AV
EXT2 VIDEO/Y
EXT1 AUDIO R
EXT1 AUDIO L (MONO)
A5-1 TUNER / IF / VIDEO DETECTOR
(TDA8844)
A5-2
(TDA8845)
VLOT AUX+5V
TUNER
5002
1003 1004
7250-A' TDA 8844/45
VIDEO DET
RF-AGC
7251 LM 317T
+8V AUDIO
+8V BIMOS
7254 7252 STD BY CIRCUIT
STAND BY
CVBS-TERR
CVBS_INT
P2PLL/MTRAP
A6 VIDEO PROCESSING
CVBSTXT
7250-B TDA8844/45
EXT1 VIDEO
CVBS Y/C SWITCH
Y-DELAY
PAL/NTSC SECAM DECODER
BASE BAND DELAY
7250-C TDA 8844/45
RGB MATRIX
RGB INPUT
RGB CONTROL
CATHODE CALIBRA-TION
EHT INFO PROC.
EXT1R EXT1G EXT1B EXT1FB
R-TXT OSD G-TXT OSD B-TXT OSD FB-TXT OSD
B CRT
+200VA
7330 TDA 6107Q
BC-INFO
EHT-INFO
CRT
25kV
V G2
V FOCUS
EHT
A1 POWER SUPPLY
0231
170-250V SINGLE RANGE
5500 5502
6505 GBU4J
7518 STH8NA60FI
7520 MC44603A
OSC
BUFFER
CURRENT SENSE
CIRCUIT IS VALID FOR 2X2W EXECUTION (FOR OTHER EXECUTIONS SEE CIRCUIT DIAGRAM A1 AND THE DIVERSITY LIST)
AUDIO SUPPLY
VAUX
+VBATT
MAIN SUPPLY
7581 TCDT1101G
7570 TL431CLP
VBATT ADJ. (OPTIONAL)
HOT GROUND
A4 SYNC
EHT INFO
7250-D TDA8844/45
SYNC
H+LYBK
EH T INFO
H-DRIVE
A2 HORIZONTAL DEFLECTION
MAIN SUPPLY
7461 BF819
7460 BU1508DX
LINE OUTPUT CIRCUIT
HOR-DEFL-COIL
7470 STP16NE06
EW-DRIVE
E/W DRIVE
EWD-DYN
A3 VERTICAL DEFLECTION
VLOT AUX +11V
VFLYBK
7401 TDA9302H
VDRIVE-
VDRIVE+
OP. AMP
VERT. DEFL. COIL
VLOT AUX -11V
MAIN SUPPLY
EHT INFO
EWD_DYN
HFLYBK
VLOTAUX-11V
VIDEO SUPPLY
VLOTAUX+50V
VT_SUPPLY
VLOTAUX+11V
7480 L78MO5
VLOTAUX+5V
FILE MENT
PROT. CIRC. 7481 7482
STBY ON +PROTN
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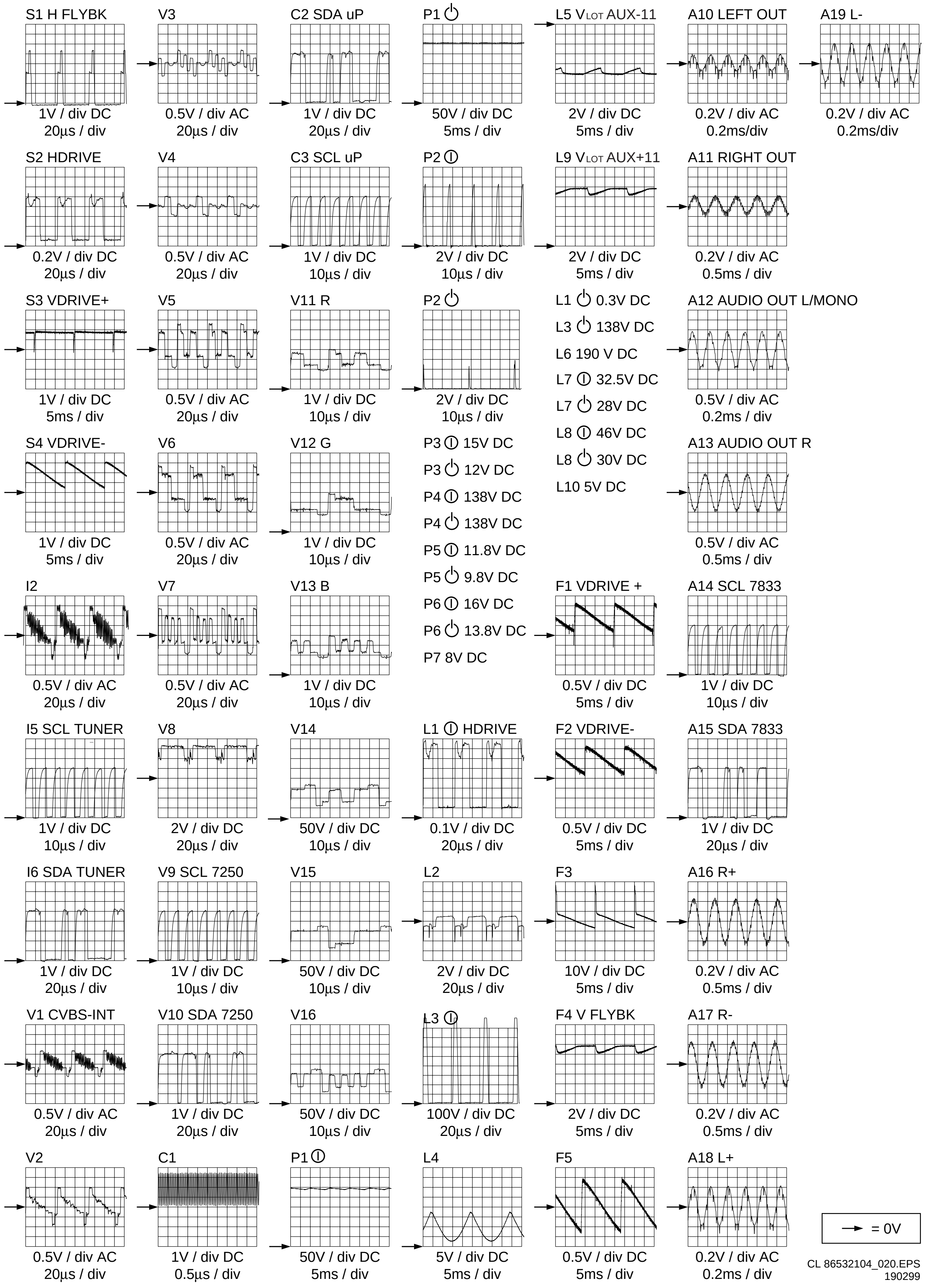

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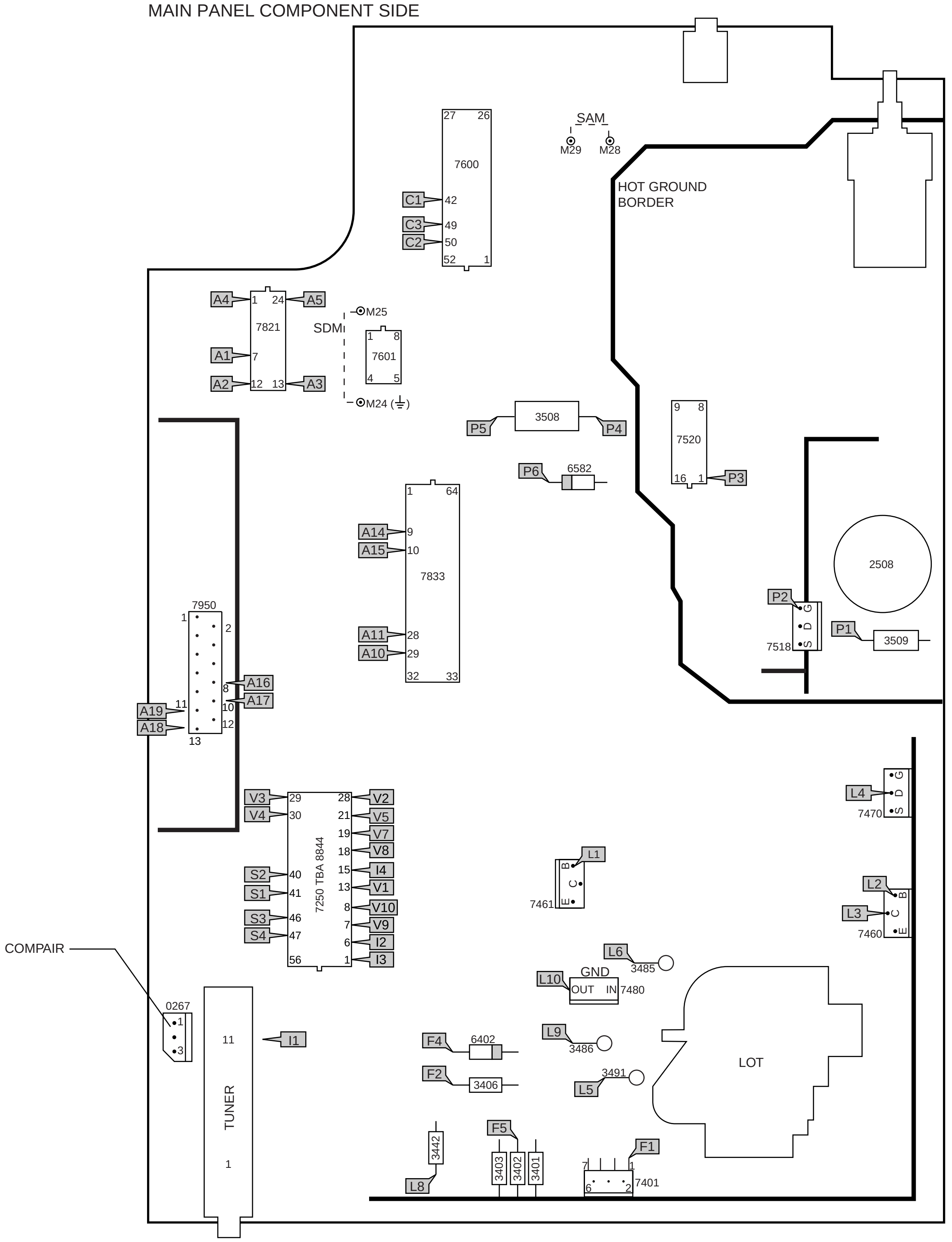
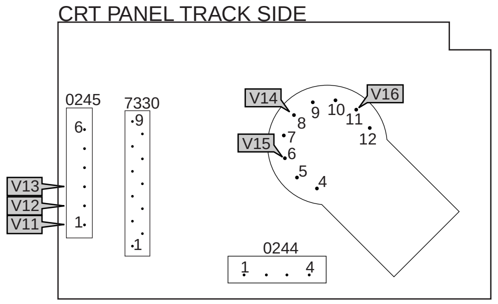

MAIN PANEL COMPONENT SIDE
7600
C1 C3 C2
27 26 42 49 50 52 1
SAM
M29 M28
HOT GROUND BORDER
A4 A5 A1 A2 A3
7821
SDM
M25 M24
7601
3508
P5 P4
7520
P3
P6 6582
A14 A15 A11 A10
7833
2508
P2
7518
P1 3509
7950
A16 A17 A19 A18
V3 V4 S2 S1 S3 S4
7250 TBA 8844
V2 V5 V7 V8 I4 V1 V10 V9 I2 I3
L1 7461
L4 7470
L2 L3 7460
COMPAIR
0267
L6 3485
GND
L10 OUT IN 7480
I1
TUNER
F4 6402
F2 3406
L9 3486
3491 L5
LOT
F5
3442 L8
3403 3402 3401
F1 7401


CRT PANEL TRACK SIDE
0245
7330
V14 V16 V15
V13 V12 V11
0244
1 4
4 5 6 7 8 9 10 11 12

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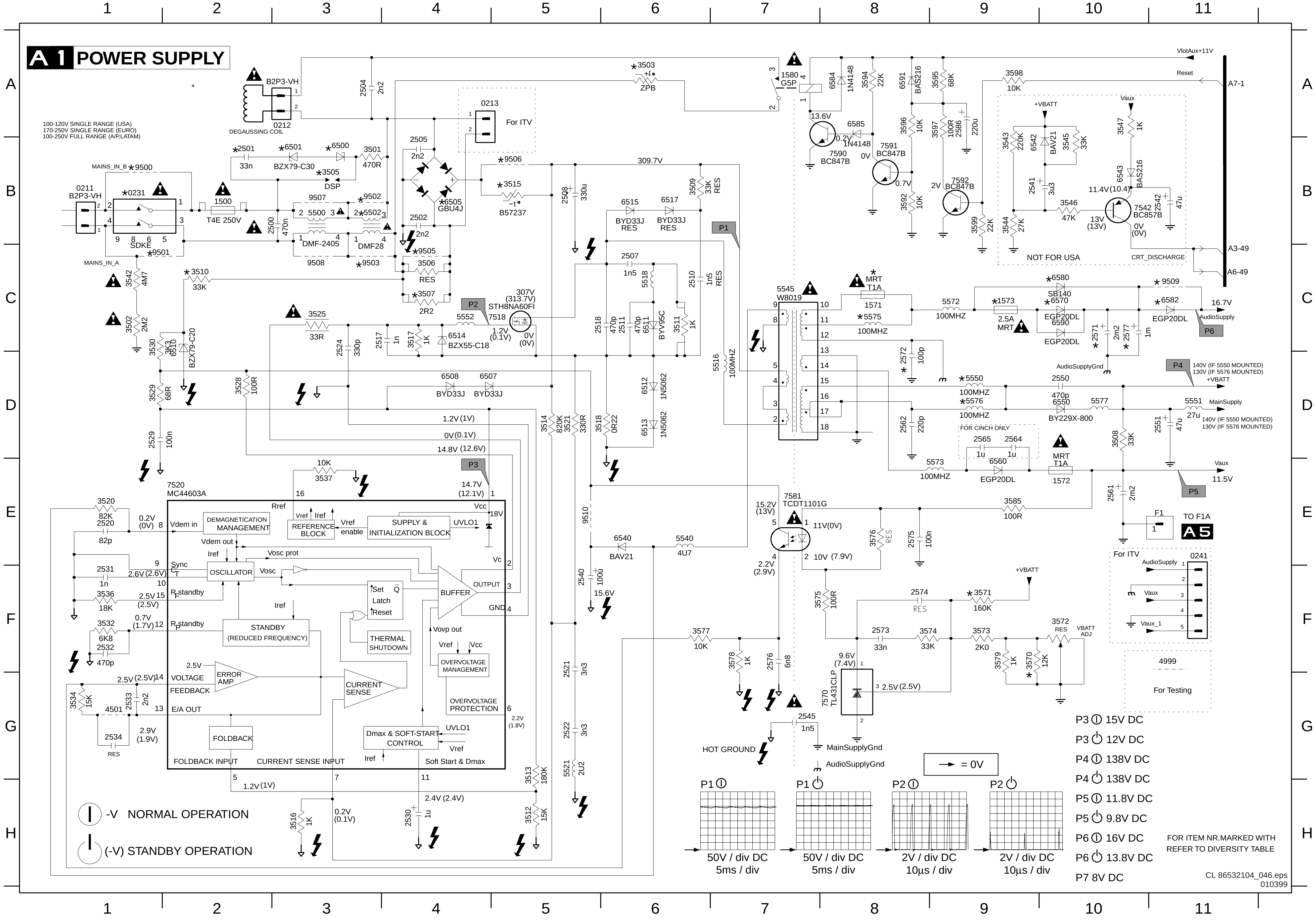
260299


A1 POWER SUPPLY
100-120V SINGLE RANGE (USA)
170-250V SINGLE RANGE (EURO)
100-250V FULL RANGE (A/P,LATAM)
DEGAUSSING COIL
B2P3-VH
0212
0211
MAINS_IN_B
MAINS_IN_A
SDKE
1500
T4E 250V
DMF-2405
DMF28
GBU4J
0213
For ITV
309.7V
ZPB
1580
G5P
7520
MC44603A
DEMAGNETICATION MANAGEMENT
REFERENCE BLOCK
SUPPLY & INITIALIZATION BLOCK
OSCILLATOR
BUFFER
STANDBY (REDUCED FREQUENCY)
THERMAL SHUTDOWN
OVERVOLTAGE MANAGEMENT
ERROR AMP
CURRENT SENSE
OVERVOLTAGE PROTECTION
FOLDBACK
Dmax & SOFT-START CONTROL
FOLDBACK INPUT
CURRENT SENSE INPUT
Soft Start & Dmax
7518
STH8NA60FI
5545
W8019
7581
TCDT1101G
7570
TL431CLP
HOT GROUND
MainSupplyGnd
AudioSupplyGnd
= 0V
NOT FOR USA
CRT_DISCHARGE
FOR CINCH ONLY
VlotAux+11V
Reset
A7-1
A3-49
A6-49
16.7V
AudioSupply
140V (IF 5550 MOUNTED)
130V (IF 5576 MOUNTED)
+VBATT
MainSupply
Vaux
11.5V
TO F1A
A5
For ITV
0241
4999
For Testing
P1
P2
P3
P4
P5
P6
50V / div DC
5ms / div
2V / div DC
10µs / div
-V NORMAL OPERATION
(-V) STANDBY OPERATION
P3 15V DC
P3 12V DC
P4 138V DC
P4 138V DC
P5 11.8V DC
P5 9.8V DC
P6 16V DC
P6 13.8V DC
P7 8V DC
FOR ITEM NR.MARKED WITH * REFER TO DIVERSITY TABLE
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010399

| | |
|---|---|
| F1 | E11 |
| 0211 | B1 |
| 0212 | A3 |
| 0213 | A4 |
| 0231 | B1 |
| 0241 | E11 |
| 1500 | B2 |
| 1571 | C8 |
| 1572 | E10 |
| 1573 | C9 |
| 1580 | A7 |
| 2500 | B3 |
| 2501 | B2 |
| 2502 | B4 |
| 2504 | A3 |
| 2505 | A4 |
| 2507 | C6 |
| 2508 | B5 |
| 2510 | C6 |
| 2511 | C6 |
| 2517 | C3 |
| 2518 | C5 |
| 2520 | E1 |
| 2521 | F5 |
| 2522 | G5 |
| 2524 | C3 |
| 2529 | D1 |
| 2530 | H4 |
| 2531 | F1 |
| 2532 | F1 |
| 2533 | G1 |
| 2534 | G1 |
| 2540 | F5 |
| 2541 | B9 |
| 2542 | B11 |
| 2545 | G7 |
| 2550 | D10 |
| 2551 | D11 |
| 2561 | E10 |
| 2562 | D8 |
| 2564 | D9 |
| 2565 | D9 |
| 2571 | C10 |
| 2572 | D8 |
| 2573 | F8 |
| 2574 | F8 |
| 2575 | E8 |
| 2576 | F7 |
| 2577 | C10 |
| 2586 | A9 |
| 3501 | B3 |
| 3502 | C1 |
| 3503 | A6 |
| 3505 | B3 |
| 3506 | C4 |
| 3507 | C4 |
| 3508 | D10 |
| 3509 | B6 |
| 3510 | C2 |
| 3511 | C6 |
| 3512 | H5 |
| 3513 | G5 |
| 3514 | D5 |
| 3515 | B5 |
| 3516 | H3 |
| 3517 | C4 |
| 3518 | D6 |
| 3520 | E1 |
| 3521 | D5 |
| 3525 | C3 |
| 3528 | D2 |
| 3529 | D1 |
| 3530 | C1 |
| 3532 | F1 |
| 3534 | G1 |
| 3536 | F1 |
| 3537 | E3 |
| 3542 | C1 |
| 3543 | B9 |
| 3544 | B9 |
| 3545 | B10 |
| 3546 | B10 |
| 3547 | A10 |
| 3570 | F9 |
| 3571 | F9 |
| 3572 | F10 |
| 3573 | F9 |
| 3574 | F8 |
| 3575 | F8 |
| 3576 | E8 |
| 3577 | F6 |
| 3578 | F7 |
| 3579 | F9 |
| 3585 | E9 |
| 3592 | B8 |
| 3594 | A8 |
| 3595 | A9 |
| 3596 | A8 |
| 3597 | A9 |
| 3598 | A9 |
| 3599 | B9 |
| 4501 | G1 |
| 4999 | F11 |
| 5500 | B3 |
| 5502 | B3 |
| 5516 | D7 |
| 5518 | C6 |
| 5521 | G5 |
| 5540 | E6 |
| 5545 | C7 |
| 5550 | D9 |
| 5551 | D11 |
| 5552 | C4 |
| 5572 | C9 |
| 5573 | E9 |
| 5575 | C8 |
| 5576 | D9 |
| 5577 | D10 |
| 6500 | B3 |
| 6501 | B3 |
| 6505 | B4 |
| 6507 | D4 |
| 6508 | D4 |
| 6510 | C2 |
| 6511 | C6 |
| 6512 | D6 |
| 6513 | D6 |
| 6514 | C4 |
| 6515 | B6 |
| 6517 | B6 |
| 6540 | E6 |
| 6542 | B9 |
| 6543 | B10 |
| 6550 | D10 |
| 6560 | D9 |
| 6570 | C10 |
| 6580 | C10 |
| 6582 | C11 |
| 6584 | A8 |
| 6585 | A8 |
| 6590 | C10 |
| 6591 | A8 |
| 7518 | C4 |
| 7520 | E2 |
| 7542 | B10 |
| 7570 | G8 |
| 7581 | E7 |
| 7590 | B8 |
| 7591 | B8 |
| 7592 | B9 |
| 9500 | B1 |
| 9501 | C1 |
| 9502 | B3 |
| 9503 | C3 |
| 9505 | C4 |
| 9506 | B5 |
| 9507 | B3 |
| 9508 | C3 |
| 9509 | C11 |
| 9510 | E5 |

## DIVERSITY TABLE FOR POWER SUPPLY

| DIVERSITY TABLE FOR ALL ITEM NO. MARKED WITH* | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ITEM | FR_CIS 25I/29I AP | LR USA | FR_NONCIS AP | HR 25I/29I EUROPE | HR_CIS 25I/29I AP | PS_FR_US | PS_FR_LA | HR 25I/29I CHINA | PS_FR NONCIS IND | ITV | 140V VBATT | 130V VBATT | 2X3w/5w AUDIO | 2X1w AUDIO | 1X1w AUDIO | 2X2w AUDIO | INDIA SVBW006ER |
| 0231 | YES | --- | YES | YES | YES | --- | YES | YES | --- | YES | --- | --- | --- | --- | --- | --- | --- |
| 1571 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | T1.0A | T1.0A | --- | --- |
| 1573 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | T2.5A | --- | --- | T2.5A | T2.5A |
| 2501 | --- | --- | YES | --- | --- | --- | YES | --- | YES | --- | --- | --- | --- | --- | --- | --- | --- |
| 2508 | 330/400V | 470/200V | 330/400V | 220/400V | 220/400V | 330/400V | 330/400V | 220/450V | 330/450V | 220/400V | --- | --- | --- | --- | --- | --- | --- |
| 2561 | 3300u | 1000u | 3300u | 3300u | 3300u | 1000u | 3300u | 3300u | 3300u | --- | --- | --- | --- | --- | --- | --- | --- |
| 2571 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 2200/25V | --- | --- | 2200/25V | 2200/25V |
| 2572 | --- | 330p | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2577 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1000/16V | 1000/16V | --- | --- |
| 3503 | 220V/9R | 110V/10R | 220V/9R | 220V/9R | 220V/9R | 220V/9R | 220V/9R | 220V/9R | --- | 220V/9R | --- | --- | --- | --- | --- | --- | --- |
| 3505 | YES | YES | --- | YES | YES | YES | --- | YES | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3507 | --- | --- | --- | 2R2/5w | 2R2/5w | --- | --- | 2R2/5w | --- | 2R2/5w | --- | --- | --- | --- | --- | --- | --- |
| 3510 | 33K/3w | 33K/3w | 33K/3w | 68K/3w | 68K/3w | 33K/3w | 33K/3w | 68K/3w | 33K/3w | --- | --- | --- | --- | --- | --- | --- | --- |
| 3515 | NTC 2R5 | NTC 2R5 | NTC 2R5 | --- | --- | NTC 2R5 | NTC 2R5 | --- | NTC 2R5 | --- | --- | --- | --- | --- | --- | --- | --- |
| 3570 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 10K | 15K | --- | --- | --- | --- | --- |
| 3571 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 160K | 150K | --- | --- | --- | --- | --- |
| 5502 | DMF2810 | --- | --- | DMF2820 | DMF2820 | --- | --- | DMF2820 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5550 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | YES | --- | --- | --- | --- | --- | --- |
| 5575 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | YES | --- | --- | YES | YES |
| 5576 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | YES | --- | --- | --- | --- | --- |
| 6500 | --- | --- | BZX79-C30 | --- | --- | --- | BZX79-C30 | --- | BZX79-C30 | --- | --- | --- | --- | --- | --- | --- | --- |
| 6501 | --- | --- | BZX79-C30 | --- | --- | --- | BZX79-C30 | --- | BZX79-C30 | --- | --- | --- | --- | --- | --- | --- | --- |
| 6505 | GBU6JL | GBU6JL | GBU6JL | GBU4JL | GBU4JL | GBU6JL | GBU6JL | GBU4JL | GBU6JL | --- | --- | --- | --- | --- | --- | --- | --- |
| 6570 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | EGP20D | --- | --- | --- | --- |
| 6580 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | SB140 | BYV27-200 | --- | EGP20D |
| 6582 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | EGP20D | --- | --- | EGP20 | EGP20 |
| 6590 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | EGP20D | --- | --- | EGP20D | EGP20D |
| 9500 | --- | YES | --- | --- | --- | YES | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9501 | --- | YES | --- | --- | --- | YES | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9502 | --- | YES | YES | --- | --- | YES | YES | --- | YES | --- | --- | --- | --- | --- | --- | --- | --- |
| 9503 | --- | YES | YES | --- | --- | YES | YES | --- | YES | --- | --- | --- | --- | --- | --- | --- | --- |
| 9505 | YES | YES | YES | --- | --- | YES | YES | --- | YES | --- | --- | --- | --- | --- | --- | --- | --- |
| 9506 | --- | --- | --- | YES | YES | --- | --- | YES | --- | YES | --- | --- | --- | --- | --- | --- | --- |
| 9509 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | YES | YES | --- | --- |

## DIVERSITY TABLE FOR HORIZONTAL DEFLECTION

| DIVERSITY TABLE FOR ALL ITEM NO. MARKED WITH * | | | | | | |
|---|---|---|---|---|---|---|
| ITEM | PHILIPS TUBE 25"/28" BLD EAST-WEST | HUA FEI TUBE 25" EAST-WEST | PHILIPS TUBE 25"/28" BLS EAST-WEST | PHILIPS TUBE 25V (26") NO EAST-WEST | PHILIPS TUBE 27V (29") NO EAST-WEST | PHILIPS TUBE 27V (29") EAST-WEST |
| 2451 | 15n | 15n | 15n | 15n | 15n | 15n/ 12n China |
| 2457 | 390n | 390n | 390n | 390n | 390n | 360n |
| 2463 | 1n | 1n | 820p | 470p | 680p | 820p/1n China |
| 2464 | --- | --- | --- | --- | --- | 2u2 |
| 2465 | 9n1 | 9n1 | 9n1 | 10n | 10n | 10n |
| 2466 | 10n | 10n | 10n | --- | --- | --- |
| 2467 | --- | --- | --- | --- | --- | 22n |
| 2468 | 18n | 18n | 18n | --- | --- | 33n |
| 2470 | 470p | 470p | 470p | --- | --- | 470p |
| 2471 | 470n | 470n | 470n | --- | --- | --- |
| 2472 | 2u2 | 2u2 | 2u2 | --- | --- | 2u2 |
| 2473 | 47u | 47u | 47u | --- | --- | 47u |
| 2475 | 560n | 560n | 510n | --- | --- | --- |
| 425 (A4) | 56k | 56k | 56k | 150k | 120k | 150k |
| 3452 | 33R | 33R | 33R | 22R | 22R | 22R |
| 3453 | --- | --- | --- | 4R7 | 4R7 | --- |
| 3470 | 33k | 33k | 33k | --- | --- | 33k |
| 3471 | 220k | 220k | 220k | --- | --- | --- |
| 3472 | 100k | 100k | 120k | --- | --- | 82k |
| 3473 | 1k | 1k | 1k | --- | --- | 1k |
| 3474 | 3R3 | 3R3 | 3R3 | --- | --- | 4R7 |
| 3475 | 3R3 | 3R3 | 3R3 | --- | --- | 4R7 |
| 3477 | 100R | 100R | 100R | --- | --- | 100R |
| 3479 | 330R | 330R | 330R | --- | --- | 330R |
| 3481/82 | Refer to | part list | videocontrol | Depends on | country. | |
| 5445 | 242253102325 | 312813820681 | 242253102324 | 242253102326 | 242253102326 | 242253102326 |
| | | | | USA:242253102327 | | China:312813820691 |
| 5451 | 33uH | 33uH | 33uH | 27uH | 27uH | 27uH |
| 5457 | 312813853111 | 312813853111 | 312813853111 | 312813853241 | 312813853241 | 312813853241 |
| 5463 | --- | --- | --- | --- | --- | 312813834021 |
| 5465 | 312813834011 | 312813834011 | 312813834011 | --- | --- | --- |
| 5470 | 311233830531 | 311233830531 | 311233830531 | --- | --- | --- |
| 5471 | --- | --- | --- | --- | --- | 1mH |
| 5480 | 33uH | 56uH | 33uH | 27uH | 27uH | 27uH/47uH China |
| 6461 | BYW95C/20 | BYW95C/20 | BYW95C/20 | --- | --- | BYW95C/20 |
| 6470 | BZX79-C9V1 | BZX79-C9V1 | BZX79-C9V1 | --- | --- | BZX79-C9V1 |
| 6471 | 1N4148 | 1N4148 | 1N4148 | --- | --- | --- |
| 6472 | 1N4148 | 1N4148 | 1N4148 | --- | --- | 1N4148 |
| 6473 | BZX79-C39 | BZX79-C39 | BZX79-C39 | --- | --- | --- |
| 7470 | STP16NE | STP16NE | STP16NE | --- | --- | STP16NE |
| 9453 | YES | YES | YES | --- | --- | YES |
| 9460 | --- | --- | --- | YES | YES | YES |
| 9461 | --- | --- | --- | YES | YES | --- |
| 9462 | YES | YES | YES | --- | --- | --- |
| 9463 | --- | --- | --- | --- | --- | YES |
| 9464 | YES | YES | YES | --- | --- | --- |

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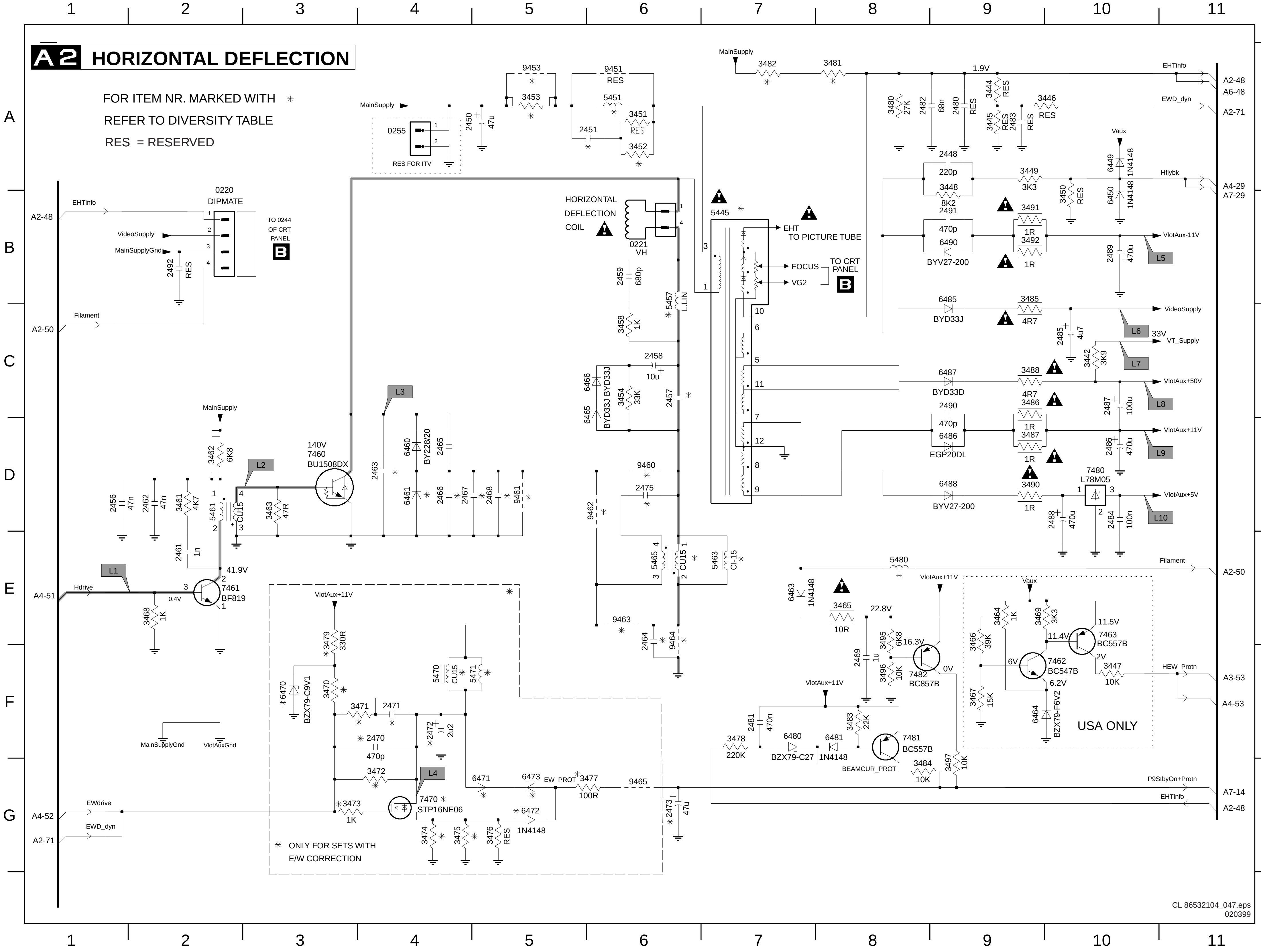
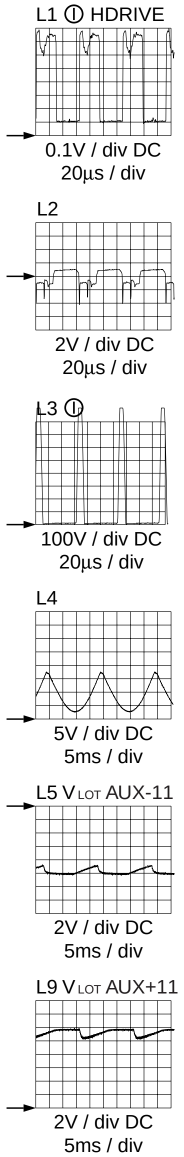
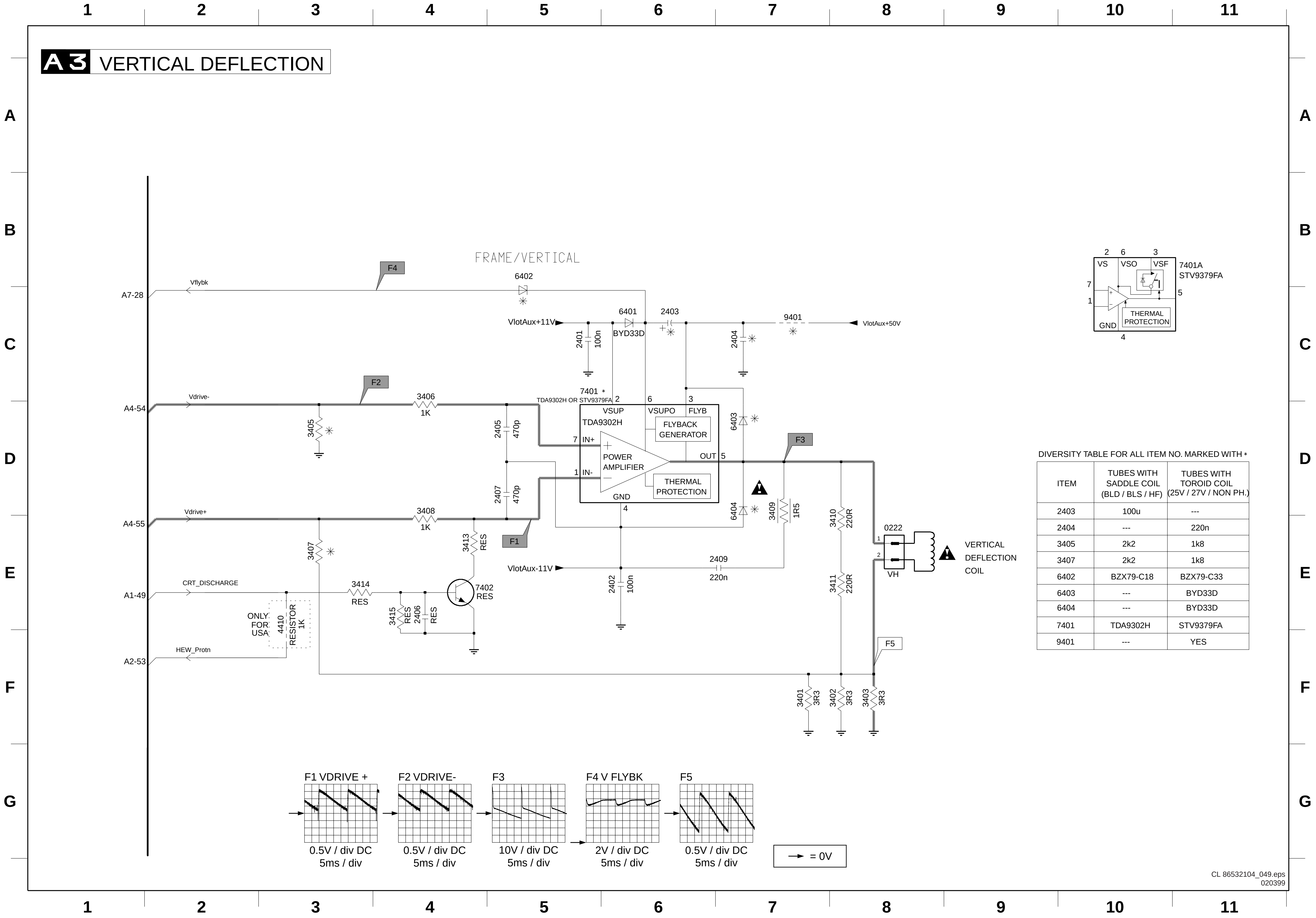

A2 HORIZONTAL DEFLECTION
FOR ITEM NR. MARKED WITH *
REFER TO DIVERSITY TABLE
RES = RESERVED
1 2 3 4 5 6 7 8 9 10 11
A B C D E F G
A2-48
A2-50
A4-51
A4-52
A2-71
EHTinfo
VideoSupply
MainSupplyGnd
Filament
Hdrive
EWdrive
EWD_dyn
MainSupply
0220 DIPMATE
TO 0244 OF CRT PANEL
B
2492 RES
0255
RES FOR ITV
2450 47u
9453
3453
9451 RES
5451
2451
3451 RES
3452
HORIZONTAL DEFLECTION COIL
0221 VH
2459 680p
3458 1K
5457 L.LIN
2458 10u
6466
6465
BYD33J BYD33J
3454 33K
2457
L3
L2
L1
140V
7460
BU1508DX
2463
6460
6461
BY228/20
2465
2466
2467
2468
9461
9460
2475
9462
5465
CU15
5463
CI-15
9463
2464
9464
3462 6K8
2456 47n
2462 47n
3461 4K7
5461
CU15
3463 47R
2461 1n
41.9V
0.4V
7461 BF819
3468 1K
MainSupplyGnd
VlotAuxGnd
VlotAux+11V
3479 330R
6470 BZX79-C9V1
3470
3471
2471
2470 470p
2472 2u2
3472
L4
6471
6473
EW_PROT
3477 100R
9465
3473 1K
7470
STP16NE06
6472 1N4148
3474
3475
3476 RES
2473 47u
5470 CU15
5471
ONLY FOR SETS WITH E/W CORRECTION
5445
EHT TO PICTURE TUBE
FOCUS
VG2
TO CRT PANEL
B
10 6 5 11 7 12 8 9
3482
3481
1.9V
3480 27K
2482 68n
2480 RES
3444 RES
3445 RES
2483 RES
3446 RES
EHTinfo
EWD_dyn
A2-48
A6-48
A2-71
2448 220p
3448 8K2
2491 470p
6490 BYV27-200
3449 3K3
3450 RES
Vaux
6449 1N4148
6450 1N4148
Hflybk
A4-29
A7-29
3491 1R
3492 1R
2489 470u
VlotAux-11V
L5
6485 BYD33J
3485 4R7
2485 4u7
VideoSupply
L6
33V
VT_Supply
3442 3K9
L7
6487 BYD33D
3488 4R7
2487 100u
VlotAux+50V
L8
2490 470p
6486 EGP20DL
3486 1R
3487 1R
2486 470u
VlotAux+11V
L9
6488 BYV27-200
3490 1R
7480 L78M05
2488 470u
2484 100n
VlotAux+5V
L10
5480
Filament
A2-50
6463 1N4148
3465 10R
22.8V
2469 1u
3495 6K8
16.3V
3496 10K
7482 BC857B
0V
VlotAux+11V
3464 1K
3469 3K3
3466 39K
3467 15K
11.5V
11.4V
7463 BC557B
6V
7462 BC547B
2V
6.2V
3447 10K
HEW_Protn
A3-53
A4-53
6464 BZX79-F6V2
USA ONLY
3478 220K
2481 470n
6480 BZX79-C27
6481 1N4148
3483 22K
7481 BC557B
3484 10K
3497 10K
BEAMCUR_PROT
P9StbyOn+Protn
EHTinfo
A7-14
A2-48
CL 86532104_047.eps
020399

| Item | Location |
|---|---|
| 0220 | B2 |
| 0221 | B6 |
| 0255 | A4 |
| 2448 | A9 |
| 2450 | A5 |
| 2451 | A6 |
| 2456 | D1 |
| 2457 | C6 |
| 2458 | C6 |
| 2459 | B6 |
| 2461 | E2 |
| 2462 | D2 |
| 2463 | D4 |
| 2464 | E6 |
| 2465 | D4 |
| 2466 | D4 |
| 2467 | D5 |
| 2468 | D5 |
| 2469 | F8 |
| 2470 | F4 |
| 2471 | F4 |
| 2472 | F4 |
| 2473 | G6 |
| 2475 | D6 |
| 2480 | A9 |
| 2481 | F7 |
| 2482 | A9 |
| 2483 | A9 |
| 2484 | D10 |
| 2485 | C10 |
| 2486 | D10 |
| 2487 | C10 |
| 2488 | D10 |
| 2489 | B10 |
| 2490 | C9 |
| 2491 | B9 |
| 2492 | B2 |
| 3442 | C10 |
| 3444 | A9 |
| 3445 | A9 |
| 3446 | A10 |
| 3447 | F10 |
| 3448 | A9 |
| 3449 | A9 |
| 3450 | B10 |
| 3451 | A6 |
| 3452 | A6 |
| 3453 | A5 |
| 3454 | C6 |
| 3458 | C6 |
| 3461 | D2 |
| 3462 | D2 |
| 3463 | D3 |
| 3464 | E9 |
| 3465 | E8 |
| 3466 | E9 |
| 3467 | F9 |
| 3468 | E2 |
| 3469 | E10 |
| 3470 | F3 |
| 3471 | F4 |
| 3472 | G4 |
| 3473 | G4 |
| 3474 | G4 |
| 3475 | G4 |
| 3476 | G5 |
| 3477 | G6 |
| 3478 | F7 |
| 3479 | E3 |
| 3480 | A8 |
| 3481 | A8 |
| 3482 | A7 |
| 3483 | F8 |
| 3484 | G9 |
| 3485 | B9 |
| 3486 | C9 |
| 3487 | D9 |
| 3488 | C9 |
| 3490 | D9 |
| 3491 | B9 |
| 3492 | B9 |
| 3495 | E8 |
| 3496 | F8 |
| 3497 | G9 |
| 5445 | B7 |
| 5451 | A6 |
| 5457 | B6 |
| 5461 | D2 |
| 5463 | E7 |
| 5465 | E6 |
| 5470 | F4 |
| 5471 | F5 |
| 5480 | E8 |
| 6449 | A10 |
| 6450 | B10 |
| 6460 | D4 |
| 6461 | D4 |
| 6463 | E7 |
| 6464 | F10 |
| 6465 | C6 |
| 6466 | C6 |
| 6470 | F3 |
| 6471 | G5 |
| 6472 | G5 |
| 6473 | G5 |
| 6480 | F7 |
| 6481 | F8 |
| 6485 | B9 |
| 6486 | D9 |
| 6487 | C9 |
| 6488 | D9 |
| 6490 | B9 |
| 7460 | D3 |
| 7461 | E2 |
| 7462 | F10 |
| 7463 | E10 |
| 7470 | G4 |
| 7480 | D10 |
| 7481 | F8 |
| 7482 | F8 |
| 9451 | A6 |
| 9453 | A5 |
| 9460 | D6 |
| 9461 | D5 |
| 9462 | D6 |
| 9463 | E6 |
| 9464 | E6 |
| 9465 | G6 |



L1 ⏻ 0.3V DC
L3 ⏻ 138V DC
L6 190 V DC
L7 Ⓘ 32.5V DC
L7 ⏻ 28V DC
L8 Ⓘ 46V DC
L8 ⏻ 30V DC
L10 5V DC

→ = 0V

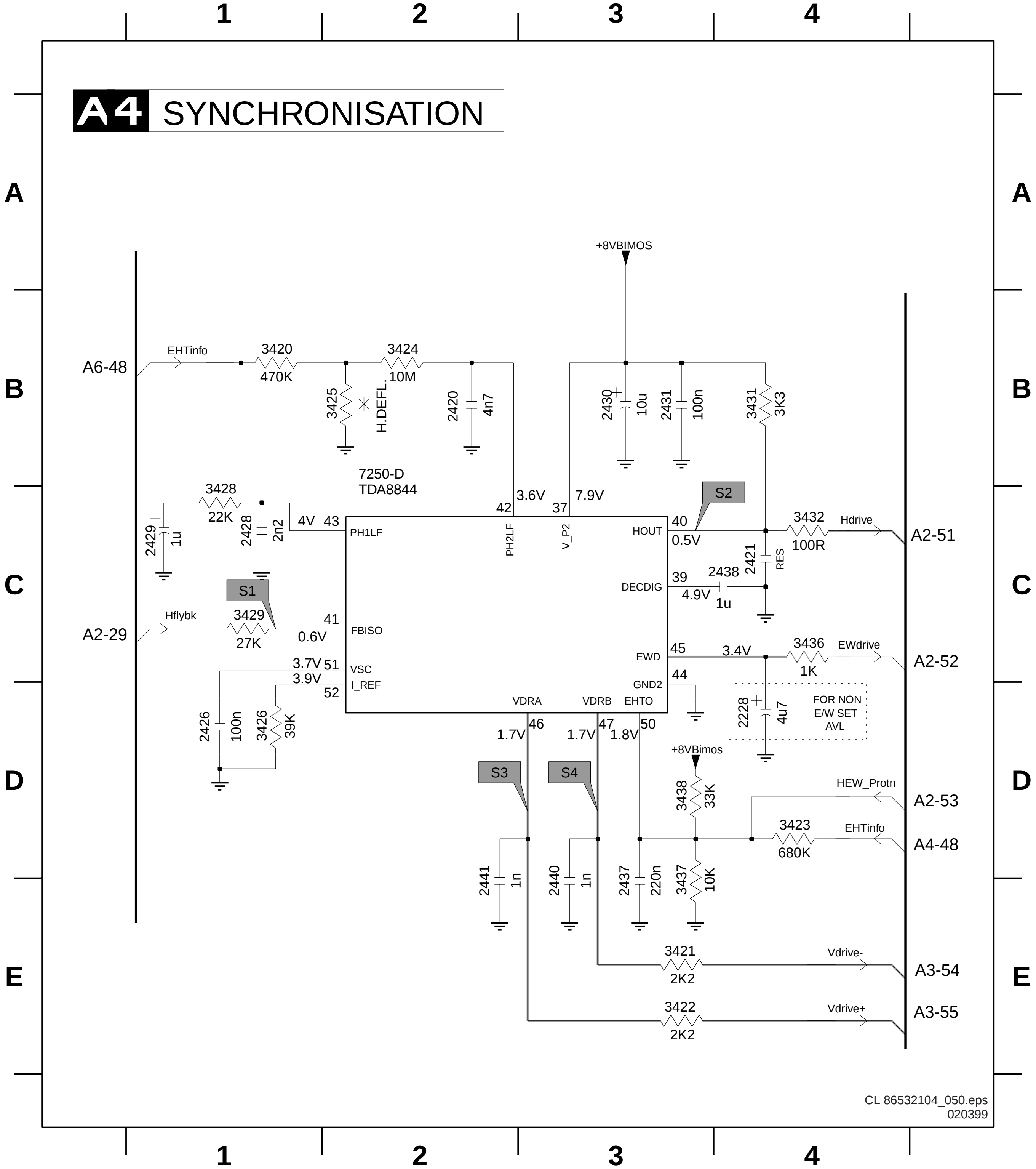

A3 VERTICAL DEFLECTION
FRAME/VERTICAL
A7-28
Vflybk
F4
6402
VlotAux+11V
6401
BYD33D
2403
2401
100n
2404
9401
VlotAux+50V
A4-54
Vdrive-
F2
3406
1K
3405
2405
470p
7401 *
TDA9302H OR STV9379FA
2
6
3
VSUP
VSUPO
FLYB
TDA9302H
FLYBACK GENERATOR
7 IN+
1 IN-
POWER AMPLIFIER
OUT 5
THERMAL PROTECTION
GND
4
6403
F3
2407
470p
A4-55
Vdrive+
3408
1K
F1
3413
RES
3407
6404
3409
1R5
3410
220R
0222
1
2
VH
VERTICAL DEFLECTION COIL
VlotAux-11V
2409
220n
2402
100n
3411
220R
A1-49
CRT_DISCHARGE
3414
RES
7402
RES
3415
RES
2406
RES
ONLY FOR USA
4410
RESISTOR
1K
A2-53
HEW_Protn
F5
3401
3R3
3402
3R3
3403
3R3
7401A
STV9379FA
VS
VSO
VSF
7
1
5
GND
4
THERMAL PROTECTION
F1 VDRIVE +
F2 VDRIVE-
F3
F4 V FLYBK
F5
0.5V / div DC
5ms / div
0.5V / div DC
5ms / div
10V / div DC
5ms / div
2V / div DC
5ms / div
0.5V / div DC
5ms / div
= 0V
CL 86532104_049.eps
020399
1 2 3 4 5 6 7 8 9 10 11
A B C D E F G

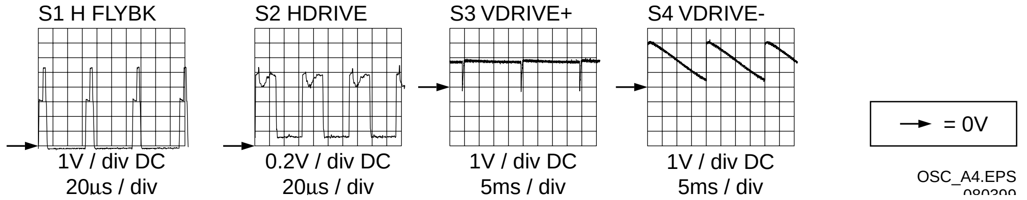
DIVERSITY TABLE FOR ALL ITEM NO. MARKED WITH *

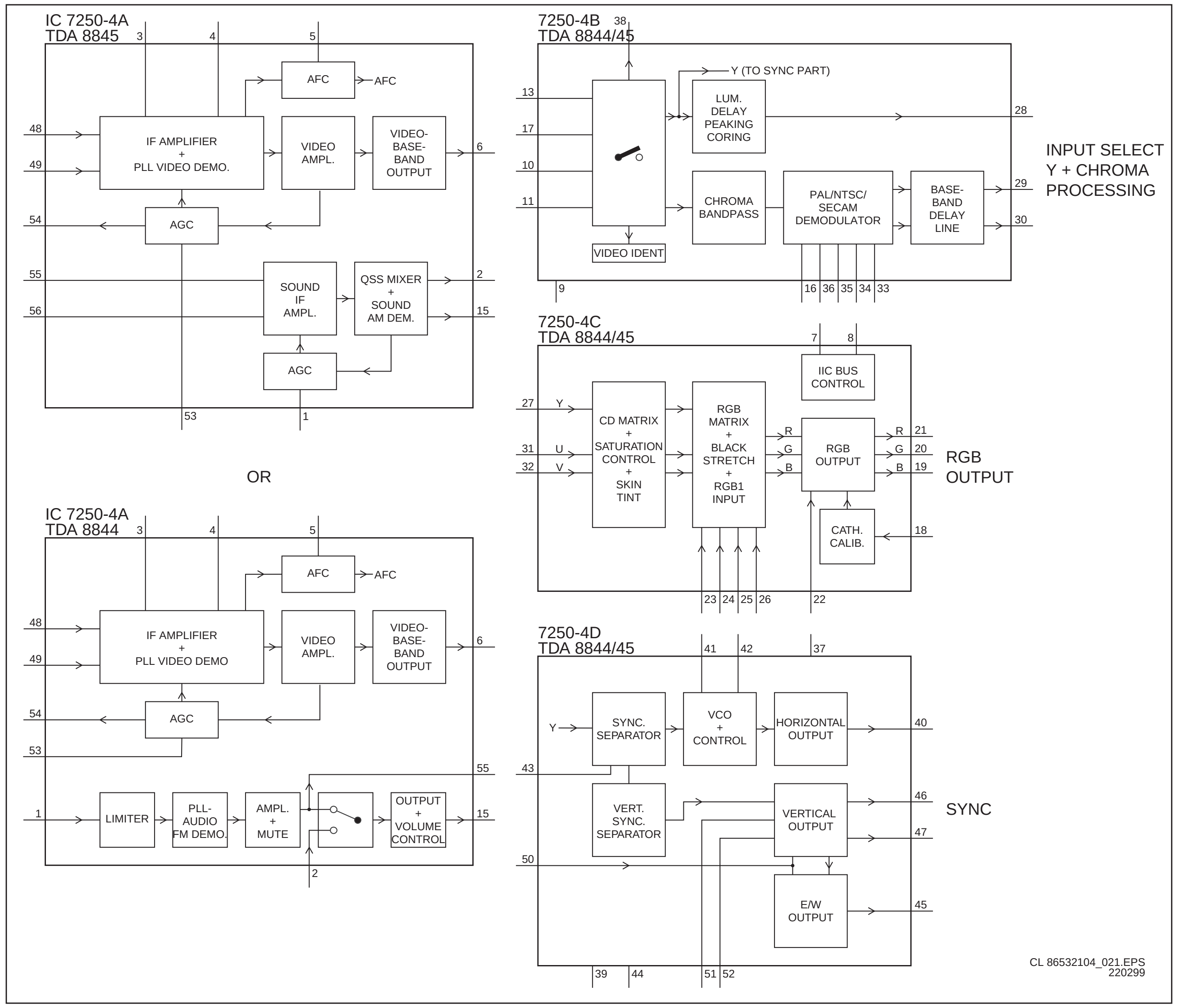
| ITEM | TUBES WITH SADDLE COIL (BLD / BLS / HF) | TUBES WITH TOROID COIL (25V / 27V / NON PH.) |
|---|---|---|
| 2403 | 100u | --- |
| 2404 | --- | 220n |
| 3405 | 2k2 | 1k8 |
| 3407 | 2k2 | 1k8 |
| 6402 | BZX79-C18 | BZX79-C33 |
| 6403 | --- | BYD33D |
| 6404 | --- | BYD33D |
| 7401 | TDA9302H | STV9379FA |
| 9401 | --- | YES |

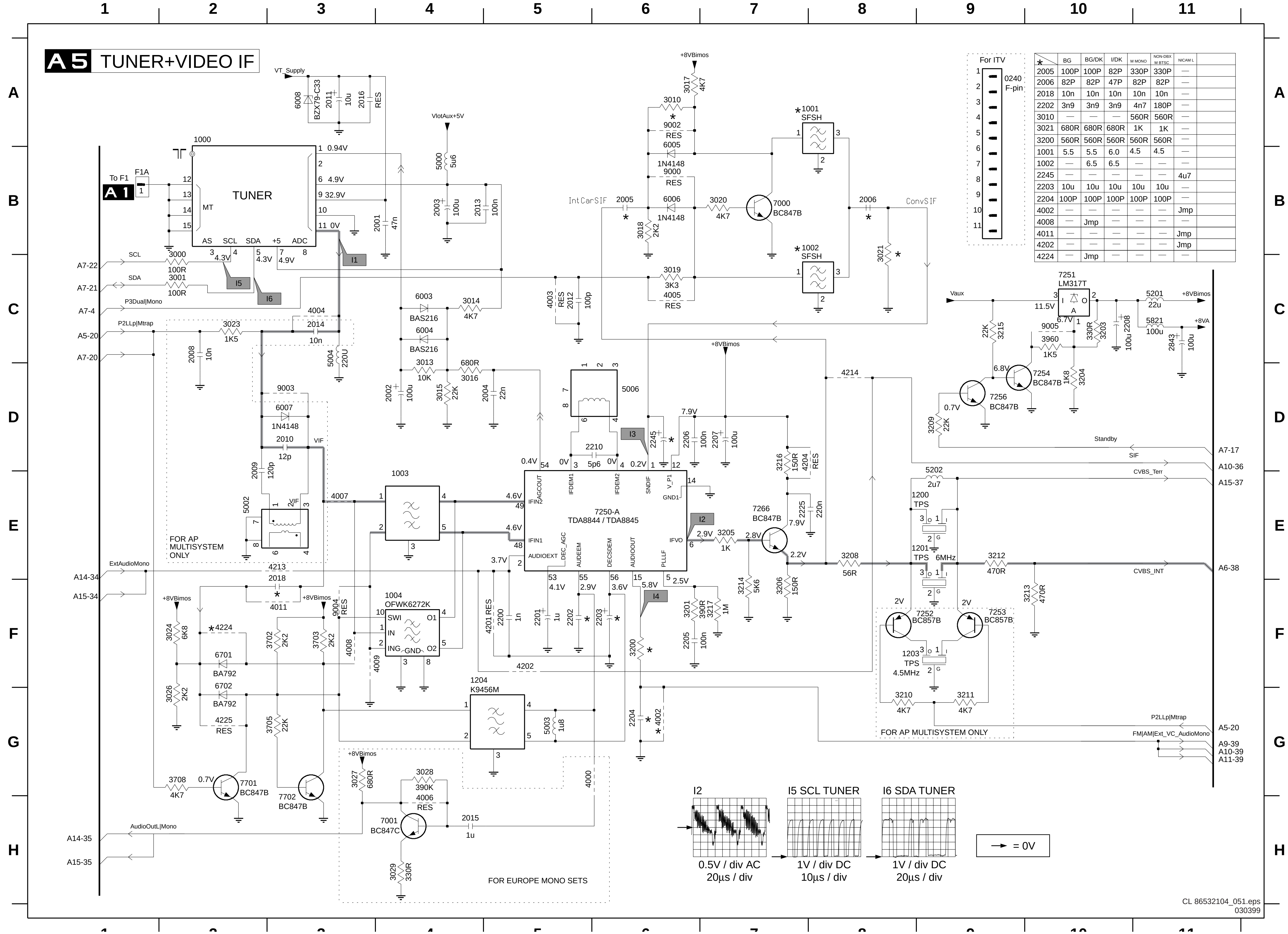
| | |
|---|---|
| **0222** | **E8** |
| **2401** | **C5** |
| **2402** | **E6** |
| **2403** | **C6** |
| **2404** | **C7** |
| **2405** | **D5** |
| **2406** | **E4** |
| **2407** | **D5** |
| **2409** | **E7** |
| **3401** | **F7** |
| **3402** | **F8** |
| **3403** | **F8** |
| **3405** | **D3** |
| **3406** | **C4** |
| **3407** | **E3** |
| **3408** | **D4** |
| **3409** | **D7** |
| **3410** | **E8** |
| **3411** | **E8** |
| **3413** | **E4** |
| **3414** | **E3** |
| **3415** | **E4** |
| **4410** | **E3** |
| **6401** | **C6** |
| **6402** | **B5** |
| **6403** | **D7** |
| **6404** | **D7** |
| **7401** | **C5** |
| **7401A** | **B11** |
| **7402** | **E4** |
| **9401** | **C7** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2228 D4 | 2426 D1 | 2430 B3 | 2438 C4 | 3420 B1 | 3423 D4 | 3426 D1 | 3431 B4 | 3437 E3 |
| 2420 B2 | 2428 C1 | 2431 B3 | 2440 E3 | 3421 E3 | 3424 B2 | 3428 C1 | 3432 C4 | 3438 D3 |
| 2421 C4 | 2429 C1 | 2437 E3 | 2441 E2 | 3422 E3 | 3425 B2 | 3429 C1 | 3436 C4 | 7250-D B2 |


A4 SYNCHRONISATION
1
2
3
4
A
B
C
D
E
A6-48
EHTinfo
3420
470K
3424
10M
3425
H.DEFL.
2420
4n7
+8VBIMOS
2430
10u
2431
100n
3431
3K3
7250-D
TDA8844
3428
22K
2429
1u
2428
2n2
4V
43
PH1LF
42
3.6V
PH2LF
37
7.9V
V_P2
HOUT
40
0.5V
S2
3432
100R
Hdrive
A2-51
39
DECDIG
2438
4.9V
1u
2421
RES
S1
A2-29
Hflybk
3429
27K
41
0.6V
FBISO
3.7V
51
VSC
3.9V
I_REF
52
EWD
45
3.4V
3436
1K
EWdrive
A2-52
GND2
44
VDRA
VDRB
EHTO
2228
4u7
FOR NON E/W SET AVL
2426
100n
3426
39K
46
1.7V
47
1.7V
1.8V
50
+8VBimos
S3
S4
3438
33K
HEW_Protn
A2-53
3423
680K
EHTinfo
A4-48
2441
1n
2440
1n
2437
220n
3437
10K
3421
2K2
Vdrive-
A3-54
3422
2K2
Vdrive+
A3-55
CL 86532104_050.eps
020399

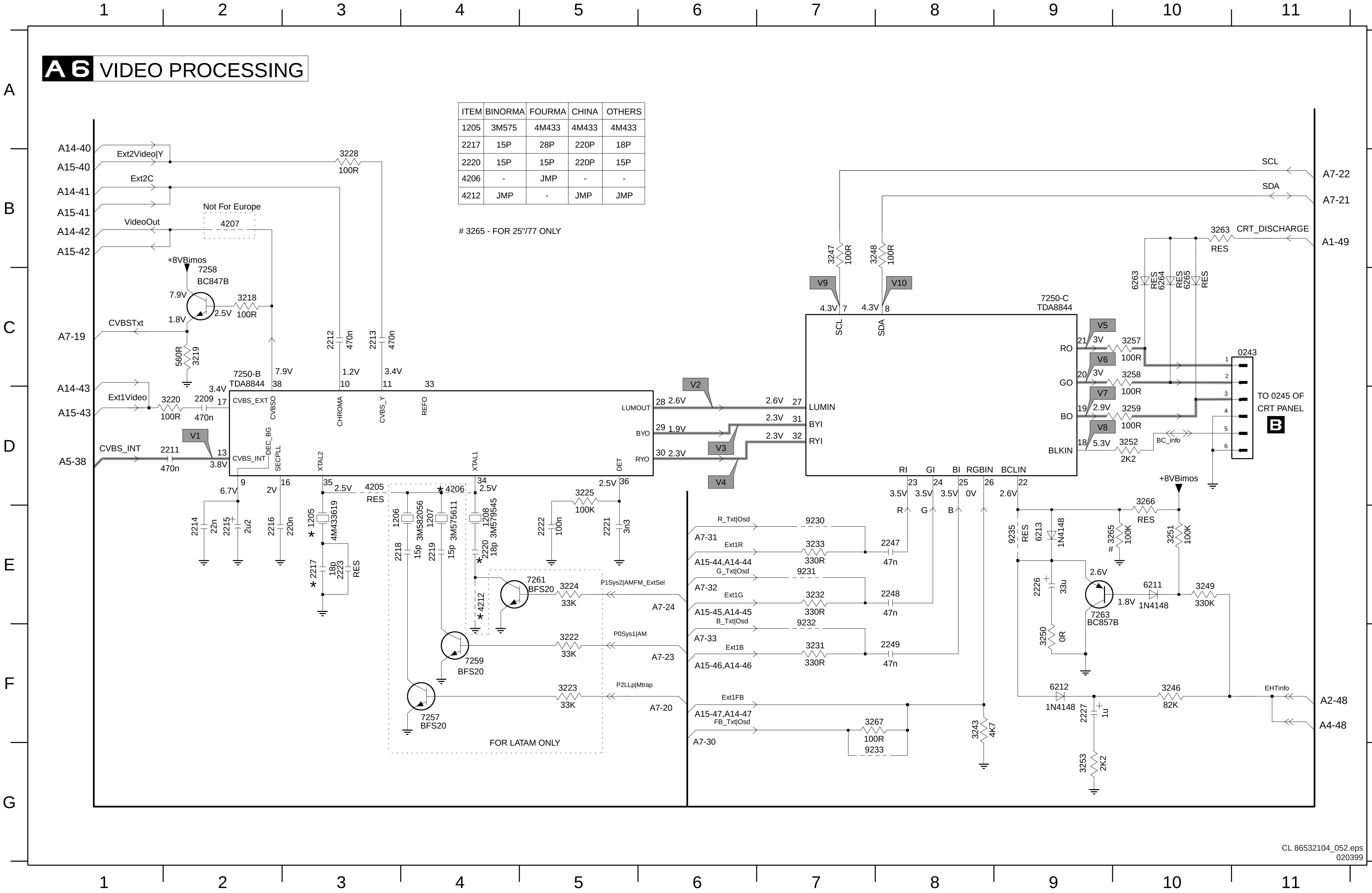



IC 7250-4A
TDA 8845
AFC
IF AMPLIFIER + PLL VIDEO DEMO.
VIDEO AMPL.
VIDEO-BASE-BAND OUTPUT
AGC
SOUND IF AMPL.
QSS MIXER + SOUND AM DEM.
AGC
OR
IC 7250-4A
TDA 8844
AFC
IF AMPLIFIER + PLL VIDEO DEMO
VIDEO AMPL.
VIDEO-BASE-BAND OUTPUT
AGC
LIMITER
PLL-AUDIO FM DEMO.
AMPL. + MUTE
OUTPUT + VOLUME CONTROL
7250-4B
TDA 8844/45
Y (TO SYNC PART)
LUM. DELAY PEAKING CORING
CHROMA BANDPASS
PAL/NTSC/ SECAM DEMODULATOR
BASE-BAND DELAY LINE
VIDEO IDENT
INPUT SELECT Y + CHROMA PROCESSING
7250-4C
TDA 8844/45
IIC BUS CONTROL
CD MATRIX + SATURATION CONTROL + SKIN TINT
RGB MATRIX + BLACK STRETCH + RGB1 INPUT
RGB OUTPUT
CATH. CALIB.
RGB OUTPUT
7250-4D
TDA 8844/45
SYNC. SEPARATOR
VCO + CONTROL
HORIZONTAL OUTPUT
VERT. SYNC. SEPARATOR
VERTICAL OUTPUT
E/W OUTPUT
SYNC
CL 86532104_021.EPS
220299


A5 TUNER+VIDEO IF
1 2 3 4 5 6 7 8 9 10 11
A B C D E F G H
A1
To F1
F1A
1000
TUNER
MT
1 0.94V
2
6 4.9V
9 32.9V
10
11 0V
12 13 14 15
AS SCL SDA +5 ADC
3 4.3V
5 4.3V
7 4.9V
8
I1 I2 I3 I4 I5 I6
VT_Supply
6008 BZX79-C33
2011 10u
2016 RES
VlotAux+5V
5000 5u6
2003 100u
2013 100n
2001 47n
A7-22 SCL 3000 100R
A7-21 SDA 3001 100R
A7-4 P3Dual|Mono
A5-20 P2LLp|Mtrap 3023 1K5
A7-20
2008 10n
4004
2014 10n
5004 220U
9003
6007 1N4148
2010 12p
2009 120p
VIF
5002
FOR AP MULTISYSTEM ONLY
4007
1003
6003 BAS216
6004 BAS216
3014 4K7
3013 10K
680R 3016
2002 100u
3015 22K
2004 22n
4003 RES
2012 100p
+8VBimos
3017 4K7
3010
9002 RES
6005 1N4148
9000 RES
IntCarSIF
2005
3018 2K2
6006 1N4148
3020 4K7
7000 BC847B
1001 SFSH
1002 SFSH
2006
ConvSIF
3021
3019 3K3
4005 RES
5006
2210 5p6
0.4V 54 0V 3 0V 4 0.2V 1 12 14
2245
7.9V
2206 100n
2207 100u
7250-A TDA8844 / TDA8845
IFIN2 AGCOUT IFDEM1 IFDEM2 SNDIF V_P1 GND1
IFIN1 AUDIOEXT DEC_AGC AUDEEM DECSDEM AUDIOOUT PLLLF IFVO
4.6V 49 4.6V 48 3.7V 2 6
53 4.1V 55 2.9V 56 3.6V 15 5.8V 5 2.5V
3216 150R
4204 RES
2225 220n
7266 BC847B
7.9V 2.9V 3205 1K 2.8V 2.2V
3214 5K6
3206 150R
3201 390R
3217 1M
2205 100n
4214
3208 56R
ExtAudioMono
A14-34 A15-34
4213
2018
4011
+8VBimos
9004 RES
1004 OFWK6272K
SWI IN ING GND O1 O2
4008
4009
4201 RES
2200 1n
2201 1u
2202
2203
3200
4202
3024 6K8
4224
6701 BA792
6702 BA792
3026 2K2
4225 RES
3702 2K2
3703 2K2
3705 22K
1204 K9456M
5003 1u8
2204
4002
3708 4K7 0.7V
7701 BC847B
7702 BC847B
A14-35 A15-35 AudioOutL|Mono
3027 680R
3028 390K
4006 RES
7001 BC847C
2015 1u
3029 330R
4000
FOR EUROPE MONO SETS
For ITV
0240 F-pin
7251 LM317T
Vaux 11.5V 6.7V
5201 22u
5821 100u
+8VA
9005
3960 1K5
3215 22K
330R 3203
2208 100u
2843 100u
6.8V
7254 BC847B
3204 1K8
7256 BC847B
0.7V
3209 22K
Standby A7-17
SIF A10-36
CVBS_Terr A15-37
5202 2u7
1200 TPS
1201 TPS 6MHz
3212 470R
CVBS_INT A6-38
3213 470R
2V 7252 BC857B
2V 7253 BC857B
1203 TPS 4.5MHz
3210 4K7
3211 4K7
P2LLp|Mtrap A5-20
FM|AM|Ext_VC_AudioMono A9-39 A10-39 A11-39
FOR AP MULTISYSTEM ONLY
I2
I5 SCL TUNER
I6 SDA TUNER
0.5V / div AC 20µs / div
1V / div DC 10µs / div
1V / div DC 20µs / div
= 0V
CL 86532104_051.eps 030399

| * | BG | BG/DK | I/DK | M MONO | NON-DBX M BTSC | NICAM L | |
|---|---|---|---|---|---|---|---|
| 2005 | 100P | 100P | 82P | 330P | 330P | — | |
| 2006 | 82P | 82P | 47P | 82P | 82P | — | |
| 2018 | 10n | 10n | 10n | 10n | 10n | — | |
| 2202 | 3n9 | 3n9 | 3n9 | 4n7 | 180P | — | |
| 3010 | — | — | — | 560R | 560R | — | |
| 3021 | 680R | 680R | 680R | 1K | 1K | — | |
| 3200 | 560R | 560R | 560R | 560R | 560R | — | |
| 1001 | 5.5 | 5.5 | 6.0 | 4.5 | 4.5 | — | |
| 1002 | — | 6.5 | 6.5 | — | — | — | |
| 2245 | — | — | — | — | — | 4u7 | |
| 2203 | 10u | 10u | 10u | 10u | 10u | — | |
| 2204 | 100P | 100P | 100P | 100P | 100P | — | |
| 4002 | — | — | — | — | — | Jmp | |
| 4008 | — | Jmp | — | — | — | — | |
| 4011 | — | — | — | — | — | Jmp | |
| 4202 | — | — | — | — | — | Jmp | |
| 4224 | — | Jmp | — | — | — | — | |

| | |
|---|---|
| F1A | B1 |
| 0240 | A9 |
| 1000 | A2 |
| 1001 | A7 |
| 1002 | B7 |
| 1003 | E4 |
| 1004 | F4 |
| 1200 | E9 |
| 1201 | E9 |
| 1203 | F9 |
| 1204 | G5 |
| 2001 | B4 |
| 2002 | D4 |
| 2003 | B4 |
| 2004 | D5 |
| 2005 | B6 |
| 2006 | B8 |
| 2008 | C2 |
| 2009 | D2 |
| 2010 | D3 |
| 2011 | A3 |
| 2012 | C5 |
| 2013 | B4 |
| 2014 | C3 |
| 2015 | H4 |
| 2016 | A3 |
| 2018 | F3 |
| 2200 | F5 |
| 2201 | F5 |
| 2202 | F5 |
| 2203 | F6 |
| 2204 | G6 |
| 2205 | F6 |
| 2206 | D6 |
| 2207 | D7 |
| 2208 | C10 |
| 2210 | D6 |
| 2225 | E7 |
| 2245 | D6 |
| 2843 | C11 |
| 3000 | C2 |
| 3001 | C2 |
| 3010 | A6 |
| 3013 | D4 |
| 3014 | C4 |
| 3015 | D4 |
| 3016 | D4 |
| 3017 | A6 |
| 3018 | B6 |
| 3019 | C6 |
| 3020 | B7 |
| 3021 | B8 |
| 3023 | C2 |
| 3024 | F2 |
| 3026 | G2 |
| 3027 | G3 |
| 3028 | G4 |
| 3029 | H4 |
| 3200 | F6 |
| 3201 | F6 |
| 3203 | C10 |
| 3204 | D10 |
| 3205 | E7 |
| 3206 | F7 |
| 3208 | E8 |
| 3209 | D9 |
| 3210 | G8 |
| 3211 | G9 |
| 3212 | E9 |
| 3213 | F10 |
| 3214 | F7 |
| 3215 | C10 |
| 3216 | D7 |
| 3217 | F7 |
| 3702 | F3 |
| 3703 | F3 |
| 3705 | G3 |
| 3708 | G2 |
| 3960 | C10 |
| 4000 | G5 |
| 4002 | G6 |
| 4003 | C5 |
| 4004 | C3 |
| 4005 | C6 |
| 4006 | H4 |
| 4007 | E3 |
| 4008 | F3 |
| 4009 | F4 |
| 4011 | F3 |
| 4201 | F5 |
| 4202 | F5 |
| 4204 | D7 |
| 4213 | E3 |
| 4214 | D8 |
| 4224 | F2 |
| 4225 | G2 |
| 5000 | B4 |
| 5002 | E2 |
| 5003 | G5 |
| 5004 | C3 |
| 5006 | D6 |
| 5201 | C11 |
| 5202 | E9 |
| 5821 | C11 |
| 6003 | C4 |
| 6004 | C4 |
| 6005 | B6 |
| 6006 | B6 |
| 6007 | D3 |
| 6008 | A3 |
| 6701 | F2 |
| 6702 | G2 |
| 7000 | B7 |
| 7001 | H4 |
| 7250-A | E6 |
| 7251 | C10 |
| 7252 | F8 |
| 7253 | F9 |
| 7254 | D10 |
| 7256 | D9 |
| 7266 | E7 |
| 7701 | G2 |
| 7702 | H3 |
| 9000 | B6 |
| 9002 | A6 |
| 9003 | D3 |
| 9004 | F3 |
| 9005 | C10 |


1
2
3
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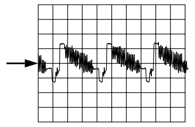
5
6
7
8
9
10
11
A
B
C
D
E
F
G
A6 VIDEO PROCESSING
A14-40
A15-40
Ext2Video|Y
Ext2C
A14-41
A15-41
VideoOut
A14-42
A15-42
Not For Europe
4207
3228
100R
+8VBimos
7258
BC847B
7.9V
3218
100R
2.5V
1.8V
CVBSTxt
A7-19
560R
3219
2212
470n
2213
470n
7250-B
TDA8844
3.4V
7.9V
1.2V
3.4V
38
10
11
33
A14-43
Ext1Video
A15-43
3220
100R
2209
470n
17
CVBS_EXT
CVBSO
CHROMA
CVBS_Y
REFO
V1
CVBS_INT
A5-38
2211
470n
13
3.8V
CVBS_INT
DEC_BG
SECPLL
XTAL2
XTAL1
DET
LUMOUT
BYO
RYO
28 2.6V
29 1.9V
30 2.3V
V2
V3
V4
9
6.7V
2V
16
35
2.5V
4205
RES
4206
34
2.5V
2.5V
36
3225
100K
2214
22n
2215
2u2
2216
220n
1205
4M433619
2217
18p
2223
RES
1206
3M582056
2218
15p
1207
3M575611
2219
15p
1208
3M579545
2220
18p
2222
100n
2221
3n3
7261
BFS20
3224
33K
P1Sys2|AMFM_ExtSel
A7-24
4212
7259
BFS20
3222
33K
P0Sys1|AM
A7-23
7257
BFS20
3223
33K
P2LLp|Mtrap
A7-20
FOR LATAM ONLY
SCL
A7-22
SDA
A7-21
3263
RES
CRT_DISCHARGE
A1-49
3247
100R
3248
100R
V9
V10
4.3V 7
4.3V 8
SCL
SDA
7250-C
TDA8844
6263
RES
6264
RES
6265
RES
2.6V 27
2.3V 31
2.3V 32
LUMIN
BYI
RYI
RO
GO
BO
BLKIN
21 3V
20 3V
19 2.9V
18 5.3V
V5
V6
V7
V8
3257
100R
3258
100R
3259
100R
3252
2K2
BC_info
0243
1
2
3
4
5
6
TO 0245 OF
CRT PANEL
B
RI
GI
BI
RGBIN
BCLIN
23
24
25
26
22
3.5V
3.5V
3.5V
0V
2.6V
R
G
B
+8VBimos
3266
RES
9235
RES
6213
1N4148
3265
100K
3251
100K
R_Txt|Osd
9230
A7-31
Ext1R
3233
330R
2247
47n
A15-44,A14-44
G_Txt|Osd
9231
A7-32
Ext1G
3232
330R
2248
47n
A15-45,A14-45
B_Txt|Osd
9232
A7-33
Ext1B
3231
330R
2249
47n
A15-46,A14-46
2226
33u
2.6V
6211
1N4148
3249
330K
1.8V
7263
BC857B
3250
0R
6212
1N4148
3246
82K
EHTinfo
A2-48
A4-48
Ext1FB
A15-47,A14-47
FB_Txt|Osd
3267
100R
9233
A7-30
3243
4K7
2227
1u
3253
2K2
CL 86532104_052.eps
020399

| ITEM | BINORMA | FOURMA | CHINA | OTHERS |
|---|---|---|---|---|
| 1205 | 3M575 | 4M433 | 4M433 | 4M433 |
| 2217 | 15P | 28P | 220P | 18P |
| 2220 | 15P | 15P | 220P | 15P |
| 4206 | - | JMP | - | - |
| 4212 | JMP | - | JMP | JMP |

# 3265 - FOR 25"/77 ONLY

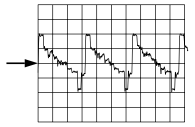
| | |
|---|---|
| 0243 | C11 |
| 1205 | E3 |
| 1206 | E3 |
| 1207 | E4 |
| 1208 | E4 |
| 2209 | D2 |
| 2211 | D2 |
| 2212 | C3 |
| 2213 | C3 |
| 2214 | E2 |
| 2215 | E2 |
| 2216 | E2 |
| 2217 | E3 |
| 2218 | E4 |
| 2219 | E4 |
| 2220 | E4 |
| 2221 | E5 |
| 2222 | E5 |
| 2223 | E3 |
| 2226 | E9 |
| 2227 | F9 |
| 2247 | E8 |
| 2248 | E8 |
| 2249 | F8 |
| 3218 | C2 |
| 3219 | C2 |
| 3220 | D2 |
| 3222 | F5 |
| 3223 | F5 |
| 3224 | E5 |
| 3225 | D5 |
| 3228 | B3 |
| 3231 | F7 |
| 3232 | E7 |
| 3233 | E7 |
| 3243 | F8 |
| 3246 | F10 |
| 3247 | B7 |
| 3248 | B8 |
| 3249 | E10 |
| 3250 | F9 |
| 3251 | E10 |
| 3252 | D10 |
| 3253 | G9 |
| 3257 | C10 |
| 3258 | C10 |
| 3259 | D10 |
| 3263 | B10 |
| 3265 | E10 |
| 3266 | D10 |
| 3267 | F7 |
| 4205 | D3 |
| 4206 | D4 |
| 4207 | B2 |
| 4212 | E4 |
| 6211 | E10 |
| 6212 | F9 |
| 6213 | E9 |
| 6263 | C10 |
| 6264 | C10 |
| 6265 | C10 |
| 7250-B | C2 |
| 7250-C | C9 |
| 7257 | F4 |
| 7258 | B2 |
| 7259 | F4 |
| 7261 | E5 |
| 7263 | E9 |
| 9230 | E7 |
| 9231 | E7 |
| 9232 | F7 |
| 9233 | G7 |
| 9235 | E9 |

V1 CVBS-INT



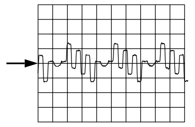
0.5V / div AC
20µs / div

V2



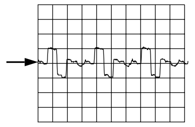
0.5V / div AC
20µs / div

V3



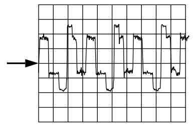
0.5V / div AC
20µs / div

V4



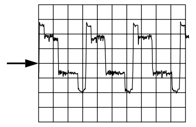
0.5V / div AC
20µs / div

V5



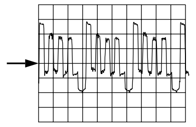
0.5V / div AC
20µs / div

V6



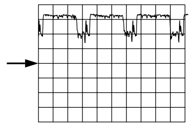
0.5V / div AC
20µs / div

V7



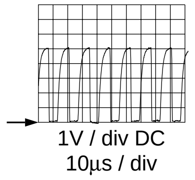
0.5V / div AC
20µs / div

V8



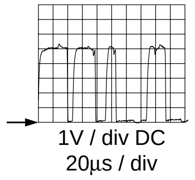
2V / div DC
20µs / div

V9 SCL 7250



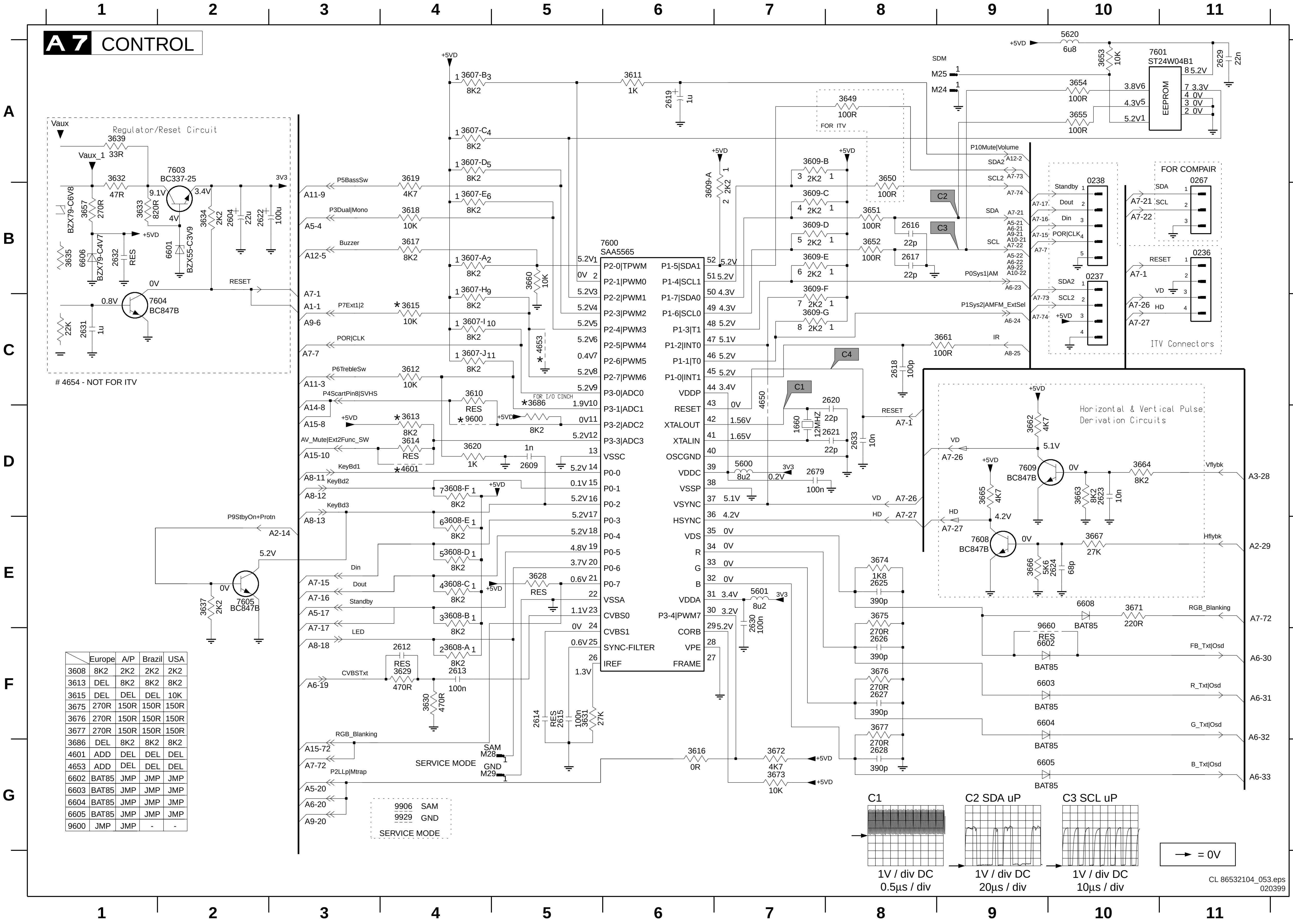
1V / div DC
10µs / div

V10 SDA 7250



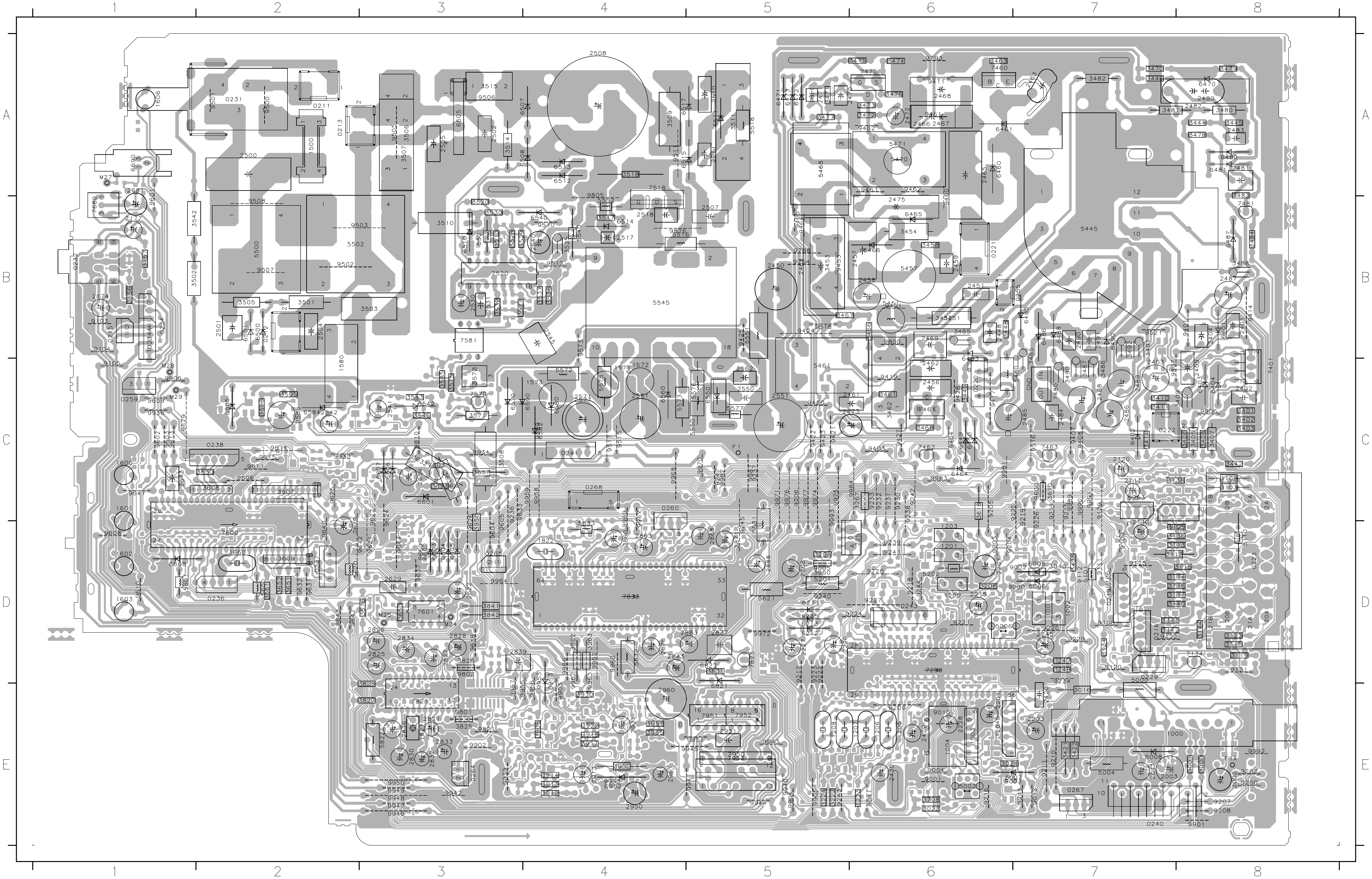
1V / div DC
20µs / div

→ = 0V


A7 CONTROL
Regulator/Reset Circuit
Vaux
Vaux_1
3639 33R
3632 47R
7603 BC337-25
9.1V
3.4V
4V
3V3
3657 270R
3633 820R
3634 2K2
2604 22u
2622 100u
BZX79-C6V8
6606 BZX79-C4V7
3635
2632 RES
6601 BZX55-C3V9
+5VD
0V
RESET
0.8V
7604 BC847B
3636 22K
2631 1u
# 4654 - NOT FOR ITV
P9StbyOn+Protn
A2-14
5.2V
0V
7605 BC847B
3637 2K2
7600 SAA5565
P2-0|TPWM
P2-1|PWM0
P2-2|PWM1
P2-3|PWM2
P2-4|PWM3
P2-5|PWM4
P2-6|PWM5
P2-7|PWM6
P3-0|ADC0
P3-1|ADC1
P3-2|ADC2
P3-3|ADC3
VSSC
P0-0
P0-1
P0-2
P0-3
P0-4
P0-5
P0-6
P0-7
VSSA
CVBS0
CVBS1
SYNC-FILTER
IREF
P1-5|SDA1
P1-4|SCL1
P1-7|SDA0
P1-6|SCL0
P1-3|T1
P1-2|INT0
P1-1|T0
P1-0|INT1
VDDP
RESET
XTALOUT
XTALIN
OSCGND
VDDC
VSSP
VSYNC
HSYNC
VDS
R
G
B
VDDA
P3-4|PWM7
CORB
VPE
FRAME
7601 ST24W04B1
EEPROM
SDM
M25
M24
5620 6u8
FOR ITV
FOR COMPAIR
ITV Connectors
0238
0237
0236
0267
Standby
Dout
Din
POR|CLK
SDA
SCL
SDA2
SCL2
VD
HD
P10Mute|Volume
P0Sys1|AM
P1Sys2|AMFM_ExtSel
IR
C1
C2
C3
C4
1660 12MHZ
FOR I/O CINCH
Horizontal & Vertical Pulse Derivation Circuits
7609 BC847B
7608 BC847B
Vflybk
Hflybk
RGB_Blanking
FB_Txt|Osd
R_Txt|Osd
G_Txt|Osd
B_Txt|Osd
BAT85
P5BassSw
P3Dual|Mono
Buzzer
P7Ext1|2
POR|CLK
P6TrebleSw
P4ScartPin8|SVHS
AV_Mute|Ext2Func_SW
KeyBd1
KeyBd2
KeyBd3
Din
Dout
Standby
LED
CVBSTxt
RGB_Blanking
P2LLp|Mtrap
SERVICE MODE
SAM
GND
M28
M29
9906 SAM
9929 GND
SERVICE MODE
C1
C2 SDA uP
C3 SCL uP
1V / div DC
0.5µs / div
1V / div DC
20µs / div
1V / div DC
10µs / div
= 0V
CL 86532104_053.eps
020399

| | Europe | A/P | Brazil | USA |
|---|---|---|---|---|
| 3608 | 8K2 | 2K2 | 2K2 | 2K2 |
| 3613 | DEL | 8K2 | 8K2 | 8K2 |
| 3615 | DEL | DEL | DEL | 10K |
| 3675 | 270R | 150R | 150R | 150R |
| 3676 | 270R | 150R | 150R | 150R |
| 3677 | 270R | 150R | 150R | 150R |
| 3686 | DEL | 8K2 | 8K2 | 8K2 |
| 4601 | ADD | DEL | DEL | DEL |
| 4653 | ADD | DEL | DEL | DEL |
| 6602 | BAT85 | JMP | JMP | JMP |
| 6603 | BAT85 | JMP | JMP | JMP |
| 6604 | BAT85 | JMP | JMP | JMP |
| 6605 | BAT85 | JMP | JMP | JMP |
| 9600 | JMP | JMP | - | - |

| | |
|---|---|
| **M24** | **A8** |
| **M25** | **A8** |
| **M28** | **G4** |
| **M29** | **G4** |
| **0236** | **B11** |
| **0237** | **C10** |
| **0238** | **B10** |
| **0267** | **B11** |
| **1660** | **D7** |
| **2604** | **B2** |
| **2609** | **D5** |
| **2612** | **F4** |
| **2613** | **F4** |
| **2614** | **F5** |
| **2615** | **F5** |
| **2616** | **B8** |
| **2617** | **B8** |
| **2618** | **C8** |
| **2619** | **A6** |
| **2620** | **D8** |
| **2621** | **D8** |
| **2622** | **B2** |
| **2623** | **D10** |
| **2624** | **E10** |
| **2625** | **E8** |
| **2626** | **F8** |
| **2627** | **F8** |
| **2628** | **G8** |
| **2629** | **A11** |
| **2630** | **F7** |
| **2631** | **C1** |
| **2632** | **B1** |
| **2633** | **D8** |
| **2679** | **D7** |
| **3607-A** | **B4** |
| **3607-B** | **A4** |
| **3607-C** | **A4** |
| **3607-D** | **B4** |
| **3607-E** | **B4** |
| **3607-H** | **C4** |
| **3607-I** | **C4** |
| **3607-J** | **C4** |
| **3608-A** | **F4** |
| **3608-B** | **F4** |
| **3608-C** | **E4** |
| **3608-D** | **E4** |
| **3608-E** | **E4** |
| **3608-F** | **D4** |
| **3609-A** | **B6** |
| **3609-B** | **A7** |
| **3609-C** | **B7** |
| **3609-D** | **B7** |
| **3609-E** | **B7** |
| **3609-F** | **C7** |
| **3609-G** | **C7** |
| **3610** | **D4** |
| **3611** | **A6** |
| **3612** | **C4** |
| **3613** | **D4** |
| **3614** | **D4** |
| **3615** | **C4** |
| **3616** | **G6** |
| **3617** | **B4** |
| **3618** | **B4** |
| **3619** | **B4** |
| **3620** | **D4** |
| **3628** | **E5** |
| **3629** | **F4** |
| **3630** | **F4** |
| **3631** | **F5** |
| **3632** | **B1** |
| **3633** | **B2** |
| **3634** | **B2** |
| **3635** | **B1** |
| **3636** | **C1** |
| **3637** | **E2** |
| **3639** | **A1** |
| **3649** | **A8** |
| **3650** | **B8** |
| **3651** | **B8** |
| **3652** | **B8** |
| **3653** | **A10** |
| **3654** | **A10** |
| **3655** | **A10** |
| **3657** | **B1** |
| **3660** | **C5** |
| **3661** | **C9** |
| **3662** | **D9** |
| **3663** | **D10** |
| **3664** | **D10** |
| **3665** | **D9** |
| **3666** | **E9** |
| **3667** | **E10** |
| **3671** | **F10** |
| **3672** | **G7** |
| **3673** | **G7** |
| **3674** | **E8** |
| **3675** | **F8** |
| **3676** | **F8** |
| **3677** | **G8** |
| **3686** | **D5** |
| **4601** | **D4** |
| **4650** | **D7** |
| **4653** | **C5** |
| **4654** | **B1** |
| **5600** | **D7** |
| **5601** | **E7** |
| **5620** | **A10** |
| **6601** | **B2** |
| **6602** | **F9** |
| **6603** | **F9** |
| **6604** | **F9** |
| **6605** | **G9** |
| **6606** | **B1** |
| **6607** | **B1** |
| **6608** | **E10** |
| **7600** | **B5** |
| **7601** | **A10** |
| **7603** | **B2** |
| **7604** | **C2** |
| **7605** | **E2** |
| **7608** | **E9** |
| **7609** | **D9** |
| **9600** | **D4** |
| **9660** | **F9** |


A
B
C
D
E

| | |
|---|---|
| F1 | C5 |
| F1A | E8 |
| M24 | D3 |
| M25 | D3 |
| M27 | A1 |
| M28 | C1 |
| M29 | C1 |
| 0211 | A2 |
| 0212 | B2 |
| 0213 | A2 |
| 0215 | B1 |
| 0216 | D7 |
| 0219 | D7 |
| 0220 | C6 |
| 0221 | B6 |
| 0222 | C7 |
| 0223 | D8 |
| 0227 | C8 |
| 0229 | D7 |
| 0231 | A2 |
| 0232 | B1 |
| 0234 | B1 |
| 0234A | B1 |
| 0236 | D2 |
| 0237 | D2 |
| 0238 | C2 |
| 0240 | E7 |
| 0241 | C4 |
| 0243 | D6 |
| 0255 | B6 |
| 0259 | C1 |
| 0260 | D4 |
| 0263 | C7 |
| 0264 | E3 |
| 0265 | D3 |
| 0267 | E7 |
| 0268 | C4 |
| 1000 | E7 |
| 1001 | D7 |
| 1002 | D7 |
| 1003 | E6 |
| 1004 | E6 |
| 1200 | D6 |
| 1201 | D6 |
| 1203 | D6 |
| 1204 | E6 |
| 1205 | E6 |
| 1206 | E6 |
| 1207 | E5 |
| 1208 | E5 |
| 1500 | A2 |
| 1571 | C4 |
| 1572 | C4 |
| 1573 | C4 |
| 1580 | C2 |
| 1600 | C1 |
| 1601 | C1 |
| 1602 | D1 |
| 1603 | D1 |
| 1606 | A1 |
| 1660 | D2 |
| 1821 | E3 |
| 1822 | D4 |
| 2002 | E8 |
| 2003 | E7 |
| 2011 | E7 |
| 2111 | C7 |
| 2112 | D7 |
| 2120 | C7 |
| 2174 | B1 |
| 2177 | B1 |
| 2201 | E6 |
| 2203 | E7 |
| 2207 | D6 |
| 2208 | D5 |
| 2215 | D6 |
| 2226 | D5 |
| 2227 | D5 |
| 2228 | E6 |
| 2245 | D7 |
| 2401 | B8 |
| 2402 | C8 |
| 2403 | C7 |
| 2404 | B8 |
| 2409 | C8 |
| 2426 | E7 |
| 2429 | E6 |
| 2430 | E6 |
| 2448 | B6 |
| 2450 | B5 |
| 2451 | B6 |
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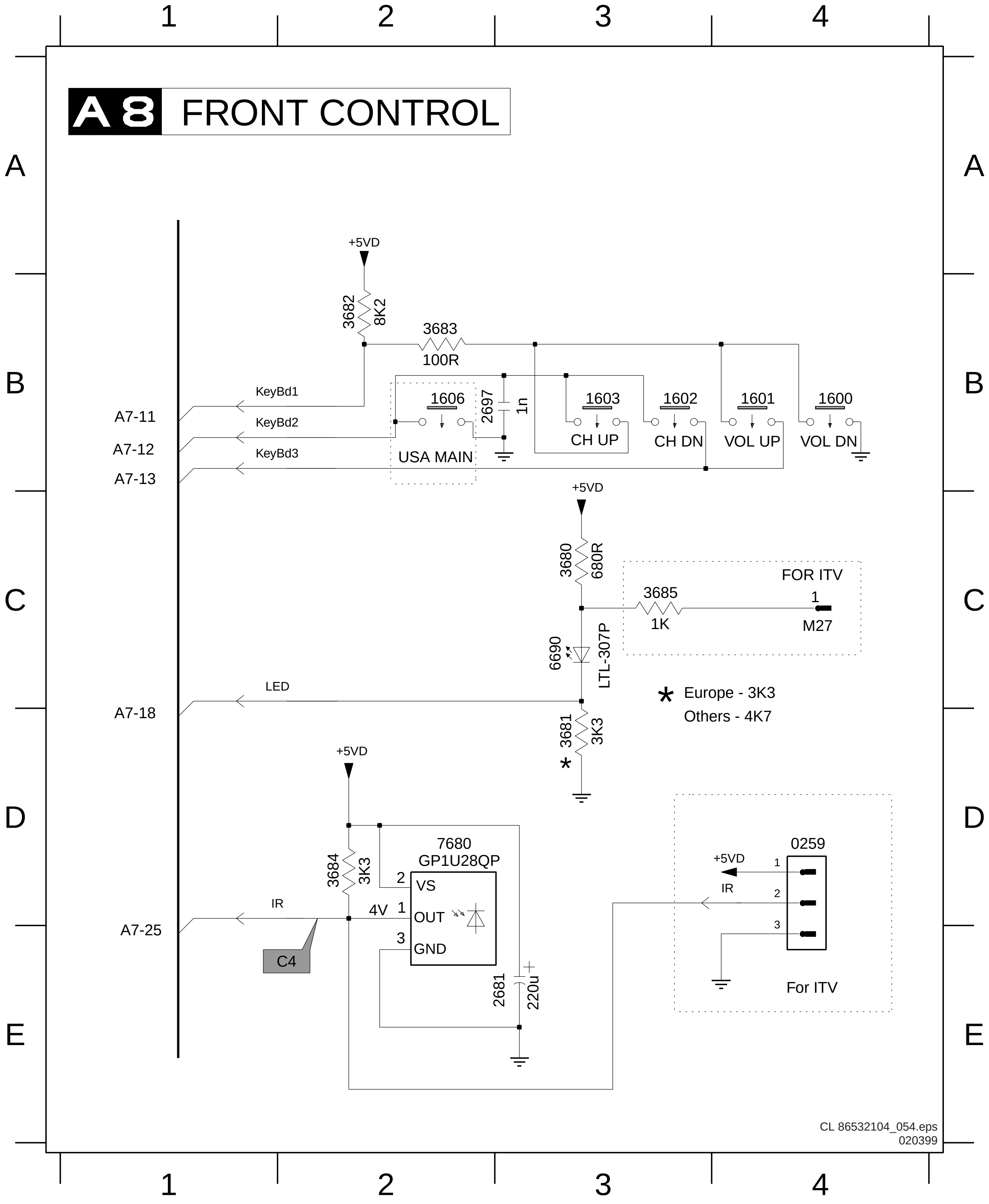

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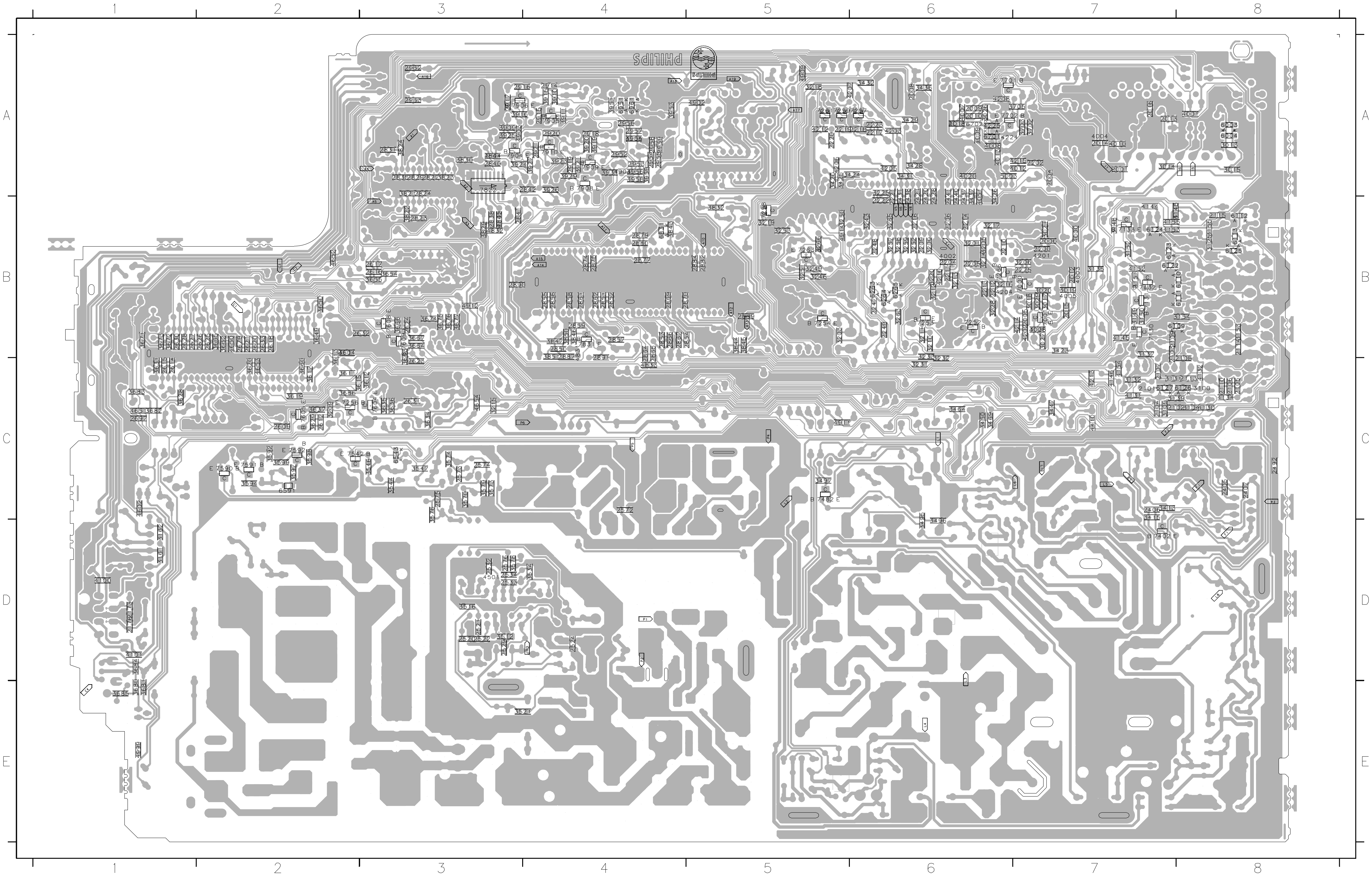
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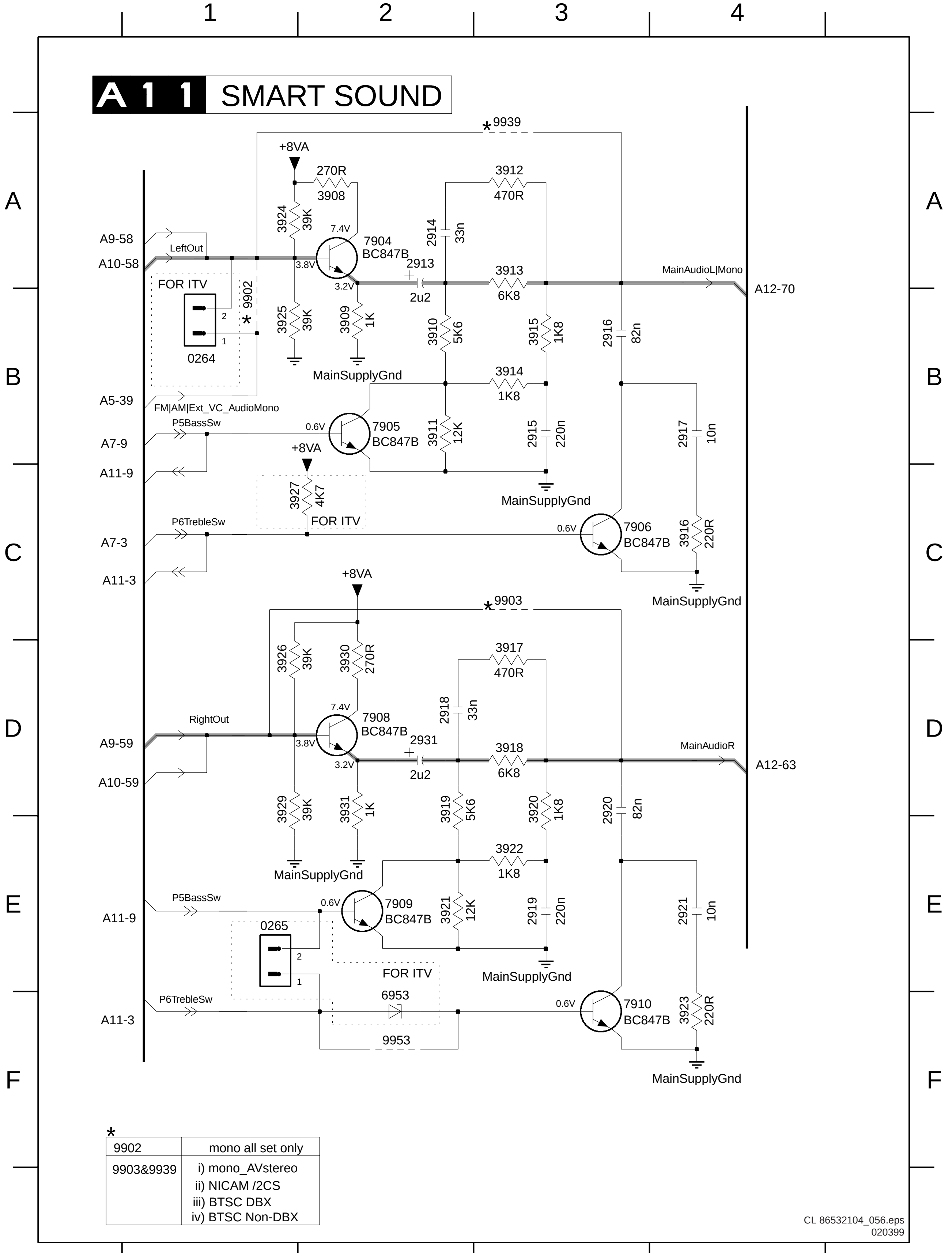
| 2576 | D3 | 3266 | B5 | 4201 | B7 | | |
| 2609 | C2 | 3413 | C7 | 4202 | B7 | | |
| 2612 | C2 | 3415 | C7 | 4203 | A6 | | |
| 2614 | C1 | 3420 | A5 | 4204 | B6 | | |
| 2615 | C1 | 3423 | B7 | 4205 | A6 | | |
| 2616 | B3 | 3424 | A6 | 4206 | A5 | | |
| 2617 | B3 | 3425 | A5 | 4207 | A6 | | |
| 2618 | B2 | 3426 | B6 | 4208 | A6 | | |
| 2620 | B2 | 3428 | A6 | 4212 | A5 | | |
| 2621 | B2 | 3429 | A6 | 4213 | C7 | | |
| 2623 | C3 | 3431 | A6 | 4214 | B7 | | |
| 2624 | B3 | 3432 | A6 | 4215 | A7 | | |
| 2625 | B2 | 3436 | A6 | 4216 | B6 | | |
| 2626 | B2 | 3437 | B6 | 4224 | A6 | | |
| 2627 | B1 | 3447 | C7 | 4225 | A6 | | |
| 2628 | B1 | 3450 | C6 | 4410 | C7 | | |
| 2630 | B1 | 3464 | C6 | 4501 | D3 | | |
| 2631 | C3 | 3469 | C6 | 4601 | B2 | | |
| 2632 | B3 | 3495 | D6 | 4602 | C1 | | |
| 2633 | B2 | 3496 | D6 | 4650 | B2 | | |
| 2679 | B2 | 3497 | C5 | 4651 | C1 | | |
| 2697 | C1 | 3512 | D3 | 4652 | B2 | | |
| 2822 | A3 | 3516 | D3 | 4653 | C2 | | |
| 2823 | B3 | 3521 | E3 | 4654 | C3 | | |
| 2824 | A3 | 3534 | D4 | 4801 | A3 | | |
| 2829 | A3 | 3544 | C3 | 4802 | B3 | | |
| 2831 | A3 | 3546 | C3 | 4831 | B4 | | |
| 2835 | A3 | 3547 | C3 | 4832 | B3 | | |
| 2838 | B3 | 3570 | C3 | 4833 | C4 | | |
| 2840 | A3 | 3573 | C3 | 4902 | A5 | | |
| 2841 | B3 | 3574 | C3 | 4903 | A3 | | |
| 2842 | A4 | 3576 | C3 | 4904 | A4 | | |
| 2844 | A3 | 3578 | D3 | 4905 | A4 | | |
| 2845 | B3 | 3579 | C3 | 4909 | A5 | | |
| 2850 | B4 | 3592 | C2 | 4911 | C5 | | |
| 2851 | B4 | 3594 | C2 | 4912 | B3 | | |
| 2852 | B4 | 3597 | C2 | 4914 | B5 | | |
| 2853 | B4 | 3598 | C2 | 4999 | E1 | | |
| 2854 | B5 | 3599 | C2 | 5003 | A6 | | |
| 2855 | B4 | 3611 | C2 | 6003 | A8 | | |
| 2856 | B4 | 3612 | C3 | 6004 | A8 | | |
| 2857 | B4 | 3613 | B2 | 6109 | B8 | | |
| 2858 | B4 | 3614 | B2 | 6110 | B8 | | |
| 2859 | B4 | 3615 | C2 | 6111 | B8 | | |
| 2861 | B4 | 3617 | C2 | 6112 | B8 | | |
| 2862 | B4 | 3619 | C2 | 6113 | B8 | | |
| 2864 | B4 | 3620 | C2 | 6122 | B7 | | |
| 2865 | B4 | 3628 | C1 | 6123 | B7 | | |
| 2866 | B4 | 3629 | C2 | 6124 | B7 | | |
| 2867 | B4 | 3631 | C1 | 6125 | B8 | | |
| 2869 | B4 | 3634 | C3 | 6126 | C8 | | |

MAIN-MAPB.eps
260299

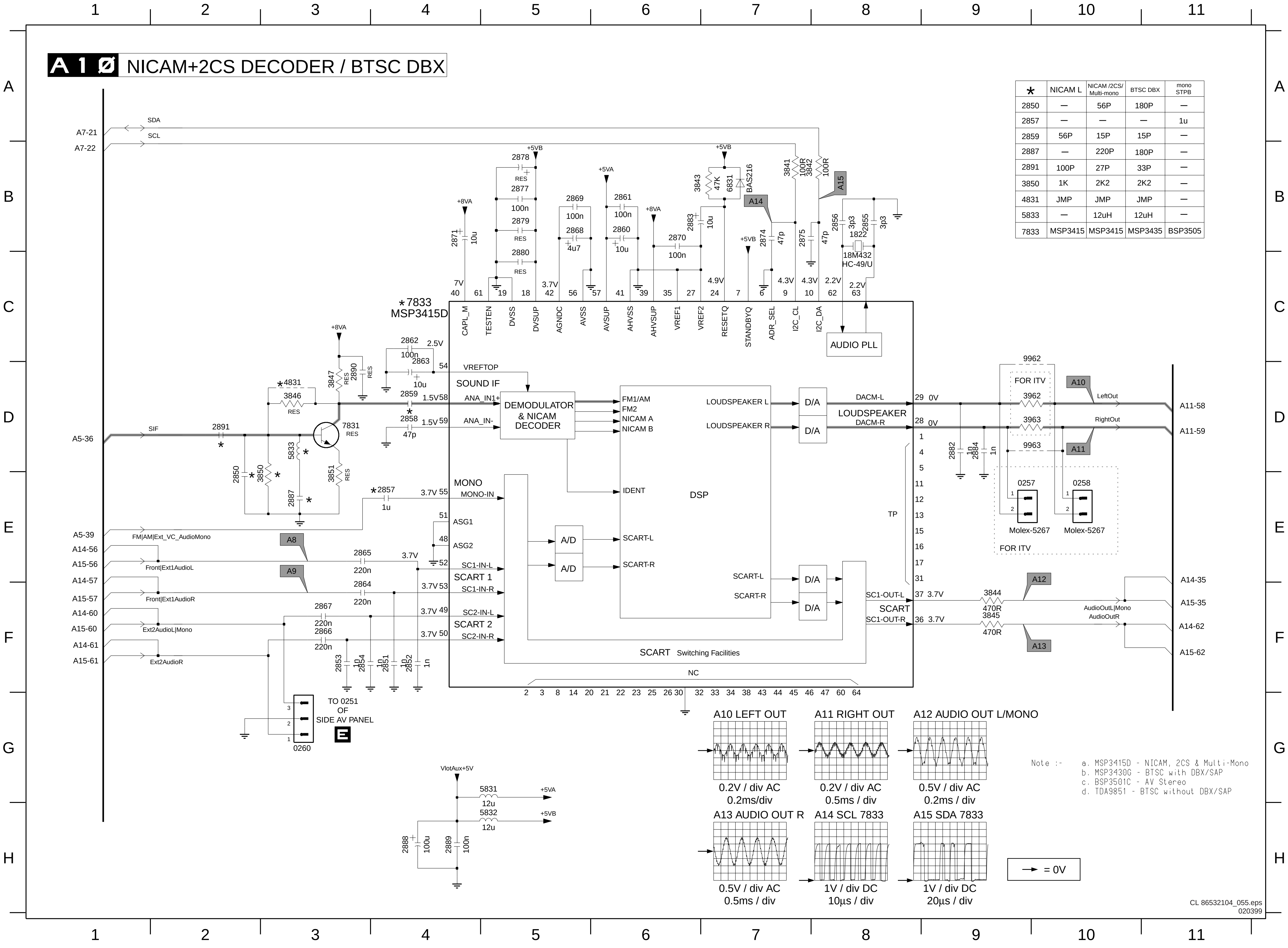
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0264 B1 | 2915 B3 | 2919 E3 | 3908 A2 | 3912 A3 | 3916 C4 | 3920 D3 | 3924 A1 | 3929 D1 | 7904 A2 | 7909 E2 | 9939 A3 |
| 0265 E1 | 2916 B3 | 2920 D3 | 3909 B2 | 3913 A3 | 3917 D3 | 3921 E2 | 3925 B1 | 3930 D2 | 7905 B2 | 7910 F3 | 9953 F2 |
| 2913 A2 | 2917 B4 | 2921 E4 | 3910 B2 | 3914 B3 | 3918 D3 | 3922 E3 | 3926 D1 | 3931 D2 | 7906 C3 | 9902 B1 | |
| 2914 A2 | 2918 D2 | 2931 D2 | 3911 B2 | 3915 B3 | 3919 D2 | 3923 F4 | 3927 C2 | 6953 E2 | 7908 D2 | 9903 C3 | |


1
2
3
4
A
B
C
D
E
F
A11 SMART SOUND
*9939
+8VA
270R
3908
3912
470R
3924
39K
7.4V
7904
BC847B
2914
33n
A9-58
A10-58
LeftOut
3.8V
3.2V
2913
2u2
3913
6K8
MainAudioL|Mono
A12-70
FOR ITV
* 9902
2
1
0264
3925
39K
3909
1K
3910
5K6
3915
1K8
2916
82n
MainSupplyGnd
3914
1K8
A5-39
FM|AM|Ext_VC_AudioMono
P5BassSw
0.6V
7905
BC847B
3911
12K
2915
220n
2917
10n
A7-9
A11-9
+8VA
3927
4K7
FOR ITV
MainSupplyGnd
P6TrebleSw
0.6V
7906
BC847B
3916
220R
A7-3
A11-3
MainSupplyGnd
+8VA
*9903
3926
39K
3930
270R
3917
470R
2918
33n
7.4V
7908
BC847B
RightOut
A9-59
3.8V
3.2V
2931
2u2
3918
6K8
MainAudioR
A12-63
A10-59
3929
39K
3931
1K
3919
5K6
3920
1K8
2920
82n
3922
1K8
MainSupplyGnd
P5BassSw
0.6V
7909
BC847B
3921
12K
2919
220n
2921
10n
A11-9
0265
2
1
FOR ITV
6953
MainSupplyGnd
P6TrebleSw
0.6V
7910
BC847B
3923
220R
A11-3
9953
MainSupplyGnd
CL 86532104_056.eps
020399

*

| | |
|---|---|
| 9902 | mono all set only |
| 9903&9939 | i) mono_AVstereo<br>ii) NICAM /2CS<br>iii) BTSC DBX<br>iv) BTSC Non-DBX |

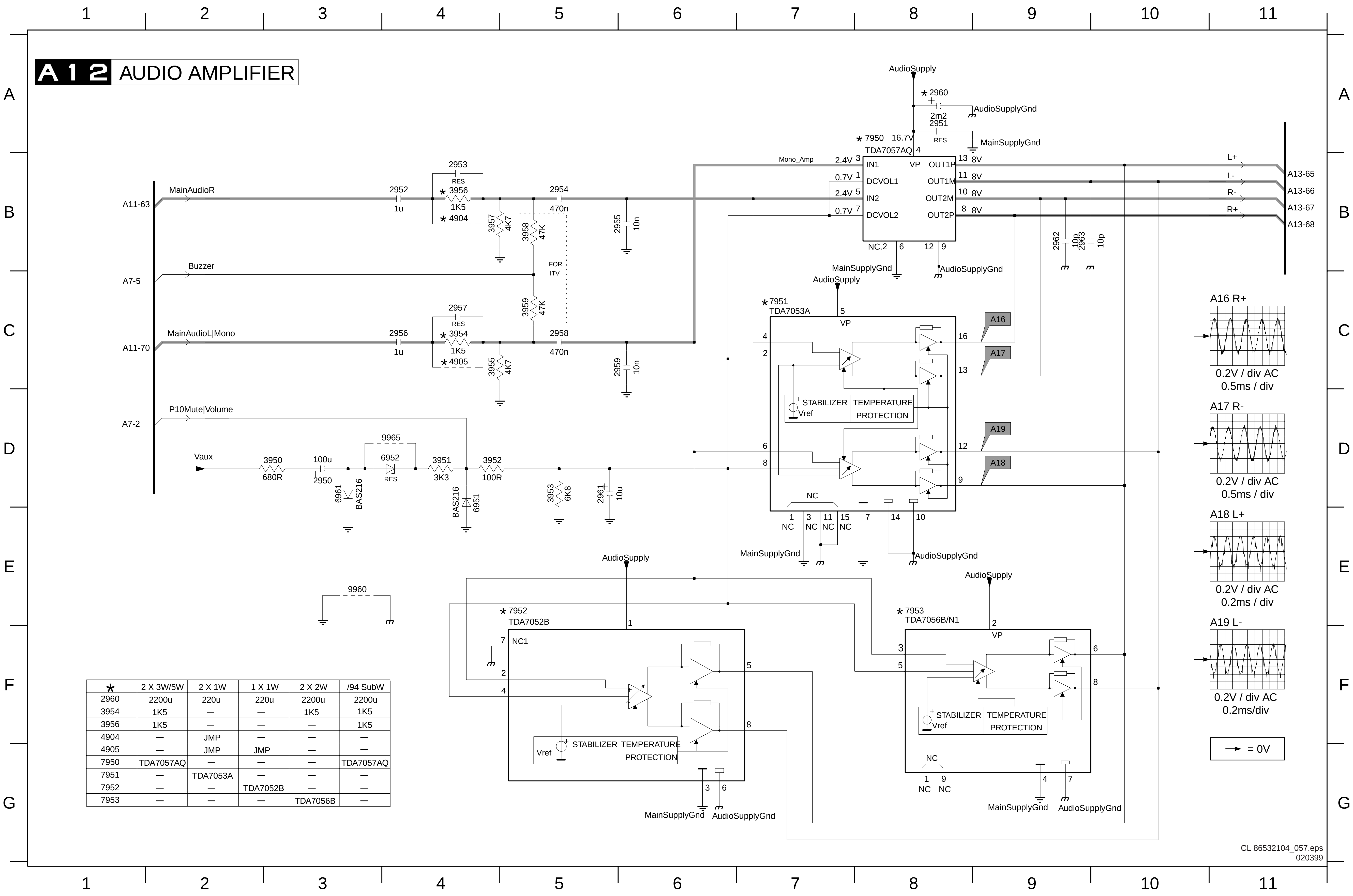
## A10 NICAM+2CS DECODER / BTSC DBX


SDA
SCL
A7-21
A7-22
A5-36
SIF
A5-39
FM|AM|Ext_VC_AudioMono
A14-56
A15-56
Front|Ext1AudioL
A14-57
A15-57
Front|Ext1AudioR
A14-60
A15-60
Ext2AudioL|Mono
A14-61
A15-61
Ext2AudioR
A8
A9
7833
MSP3415D
CAPL_M
TESTEN
DVSS
DVSUP
AGNDC
AVSS
AVSUP
AHVSS
AHVSUP
VREF1
VREF2
RESETQ
STANDBYQ
ADR_SEL
I2C_CL
I2C_DA
AUDIO PLL
SOUND IF
VREFTOP
ANA_IN1+
ANA_IN-
DEMODULATOR & NICAM DECODER
FM1/AM
FM2
NICAM A
NICAM B
IDENT
DSP
LOUDSPEAKER L
LOUDSPEAKER R
D/A
DACM-L
DACM-R
LOUDSPEAKER
MONO
MONO-IN
ASG1
ASG2
SCART 1
SC1-IN-L
SC1-IN-R
SCART 2
SC2-IN-L
SC2-IN-R
A/D
SCART-L
SCART-R
SC1-OUT-L
SC1-OUT-R
SCART
SCART Switching Facilities
NC
TP
1822
18M432
HC-49/U
BAS216
A14
A15
9962
FOR ITV
A10
A11
3962
3963
9963
LeftOut
RightOut
A11-58
A11-59
0257
0258
Molex-5267
A12
A13
3844
3845
470R
AudioOutL|Mono
AudioOutR
A14-35
A15-35
A14-62
A15-62
TO 0251 OF SIDE AV PANEL
E
0260
VlotAux+5V
5831
5832
12u
+5VA
+5VB
2888
2889
100u
100n
A10 LEFT OUT
0.2V / div AC
0.2ms/div
A11 RIGHT OUT
0.2V / div AC
0.5ms / div
A12 AUDIO OUT L/MONO
0.5V / div AC
0.2ms / div
A13 AUDIO OUT R
0.5V / div AC
0.5ms / div
A14 SCL 7833
1V / div DC
10µs / div
A15 SDA 7833
1V / div DC
20µs / div
= 0V
CL 86532104_055.eps
020399

| * | NICAM L | NICAM /2CS/ Multi-mono | BTSC DBX | mono STPB |
|---|---|---|---|---|
| 2850 | — | 56P | 180P | — |
| 2857 | — | — | — | 1u |
| 2859 | 56P | 15P | 15P | — |
| 2887 | — | 220P | 180P | — |
| 2891 | 100P | 27P | 33P | — |
| 3850 | 1K | 2K2 | 2K2 | — |
| 4831 | JMP | JMP | JMP | — |
| 5833 | — | 12uH | 12uH | — |
| 7833 | MSP3415 | MSP3415 | MSP3435 | BSP3505 |

Note :- a. MSP3415D - NICAM, 2CS & Multi-Mono
b. MSP3430G - BTSC with DBX/SAP
c. BSP3501C - AV Stereo
d. TDA9851 - BTSC without DBX/SAP

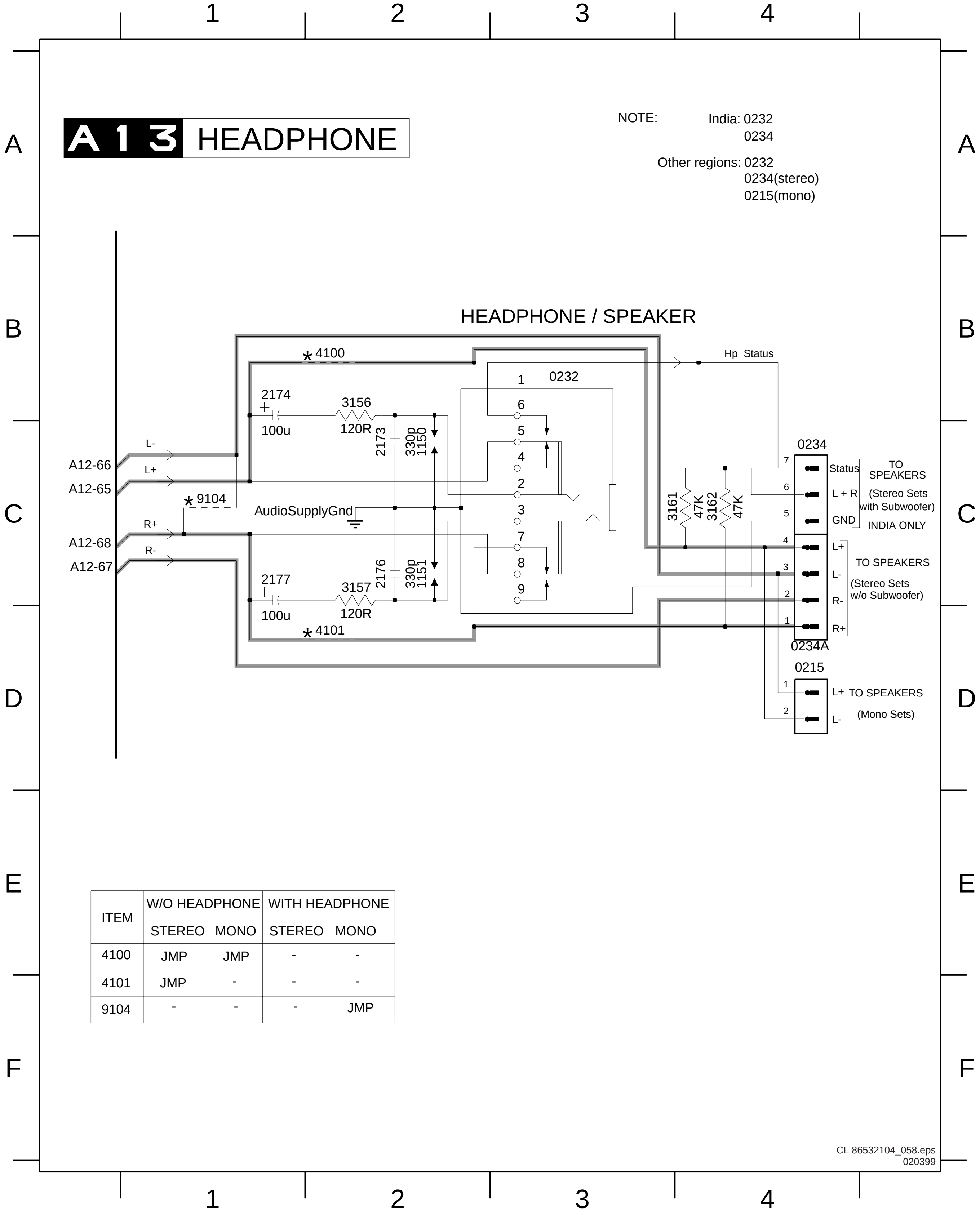
| | |
|---|---|
| 0257 | E9 |
| 0258 | E10 |
| 0260 | G3 |
| 1822 | B8 |
| 2850 | E2 |
| 2851 | F4 |
| 2852 | F4 |
| 2853 | F3 |
| 2854 | F3 |
| 2855 | B8 |
| 2856 | B8 |
| 2857 | E4 |
| 2858 | D4 |
| 2859 | D4 |
| 2860 | B6 |
| 2861 | B6 |
| 2862 | C4 |
| 2863 | C4 |
| 2864 | F3 |
| 2865 | E3 |
| 2866 | F3 |
| 2867 | F3 |
| 2868 | B5 |
| 2869 | B5 |
| 2870 | B6 |
| 2871 | B4 |
| 2874 | B7 |
| 2875 | B7 |
| 2877 | B5 |
| 2878 | B5 |
| 2879 | B5 |
| 2880 | B5 |
| 2882 | D9 |
| 2883 | B6 |
| 2884 | D9 |
| 2887 | E3 |
| 2888 | H4 |
| 2889 | H4 |
| 2890 | D3 |
| 2891 | D2 |
| 3841 | B7 |
| 3842 | B7 |
| 3843 | B6 |
| 3844 | F9 |
| 3845 | F9 |
| 3846 | D3 |
| 3847 | D3 |
| 3850 | E3 |
| 3851 | E3 |
| 3962 | D10 |
| 3963 | D10 |
| 4831 | D3 |
| 5831 | G5 |
| 5832 | H5 |
| 5833 | D3 |
| 6831 | B7 |
| 7831 | D3 |
| 7833 | C4 |
| 9962 | C10 |
| 9963 | D10 |


A12 AUDIO AMPLIFIER
1 2 3 4 5 6 7 8 9 10 11
A B C D E F G
AudioSupply
2960
2m2
AudioSupplyGnd
2951
RES
MainSupplyGnd
7950
16.7V
TDA7057AQ
Mono_Amp
2.4V
0.7V
2.4V
0.7V
IN1
VP
OUT1P
DCVOL1
OUT1M
IN2
OUT2M
DCVOL2
OUT2P
NC.2
8V
L+
L-
R-
R+
A13-65
A13-66
A13-67
A13-68
2962
10p
2963
10p
MainAudioR
A11-63
2952
1u
2953
RES
3956
1K5
4904
2954
470n
3957
4K7
3958
47K
2955
10n
FOR ITV
Buzzer
A7-5
2957
RES
3954
1K5
4905
3959
47K
MainAudioL|Mono
A11-70
2956
1u
2958
470n
3955
4K7
2959
10n
P10Mute|Volume
A7-2
Vaux
3950
680R
100u
2950
9965
6952
RES
3951
3K3
3952
100R
6961
BAS216
BAS216
6951
3953
6K8
2961
10u
7951
TDA7053A
STABILIZER
Vref
TEMPERATURE PROTECTION
A16
A17
A19
A18
NC
9960
7952
TDA7052B
NC1
7953
TDA7056B/N1
A16 R+
0.2V / div AC
0.5ms / div
A17 R-
0.2V / div AC
0.5ms / div
A18 L+
0.2V / div AC
0.2ms / div
A19 L-
0.2V / div AC
0.2ms/div
= 0V
CL 86532104_057.eps
020399

| * | 2 X 3W/5W | 2 X 1W | 1 X 1W | 2 X 2W | /94 SubW |
|---|---|---|---|---|---|
| 2960 | 2200u | 220u | 220u | 2200u | 2200u |
| 3954 | 1K5 | — | — | 1K5 | 1K5 |
| 3956 | 1K5 | — | — | — | 1K5 |
| 4904 | — | JMP | — | — | — |
| 4905 | — | JMP | JMP | — | — |
| 7950 | TDA7057AQ | — | — | — | TDA7057AQ |
| 7951 | — | TDA7053A | — | — | — |
| 7952 | — | — | TDA7052B | — | — |
| 7953 | — | — | — | TDA7056B | — |

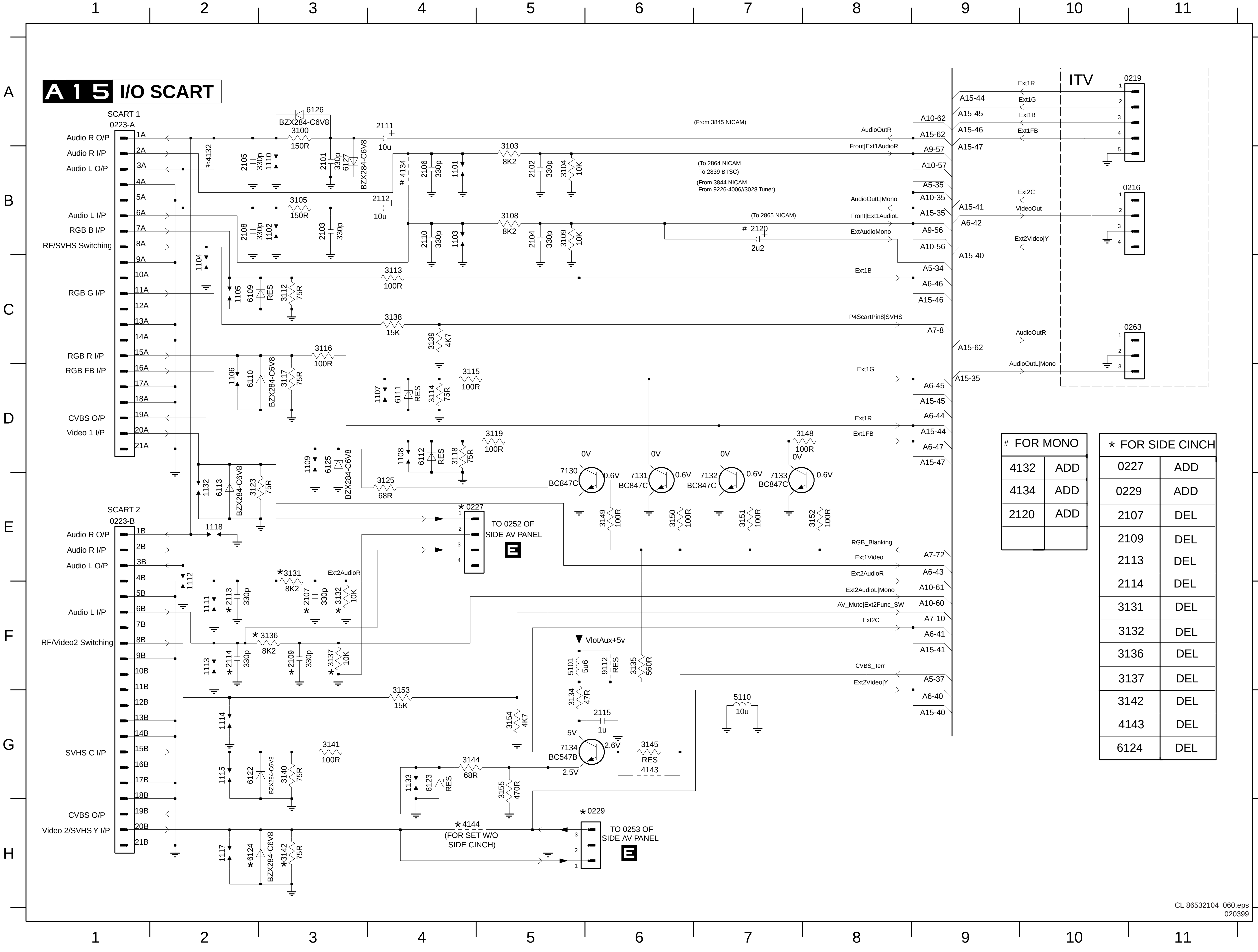
| | |
|---|---|
| 2950 | D3 |
| 2951 | A8 |
| 2952 | B4 |
| 2953 | B4 |
| 2954 | B5 |
| 2955 | B6 |
| 2956 | C4 |
| 2957 | C4 |
| 2958 | C5 |
| 2959 | C6 |
| 2960 | A8 |
| 2961 | D5 |
| 2962 | B9 |
| 2963 | B9 |
| 3950 | D3 |
| 3951 | D4 |
| 3952 | D4 |
| 3953 | D5 |
| 3954 | C4 |
| 3955 | C4 |
| 3956 | B4 |
| 3957 | B4 |
| 3958 | B5 |
| 3959 | C5 |
| 4904 | B4 |
| 4905 | C4 |
| 6951 | D4 |
| 6952 | D4 |
| 6961 | D3 |
| 7950 | A8 |
| 7951 | C7 |
| 7952 | E5 |
| 7953 | E8 |
| 9960 | E3 |
| 9965 | D4 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 0215 D4 | 0234 C4 | 1150 C2 | 2173 C2 | 2176 C2 | 3156 B2 | 3161 C4 | 4100 B2 | 9104 C1 |
| 0232 B3 | 0234A D4 | 1151 C2 | 2174 B1 | 2177 C1 | 3157 C2 | 3162 C4 | 4101 D2 | |


1
2
3
4
A
B
C
D
E
F
A13 HEADPHONE
NOTE:
India: 0232
0234
Other regions: 0232
0234(stereo)
0215(mono)
HEADPHONE / SPEAKER
*4100
*4101
*9104
Hp_Status
0232
1
6
5
4
2
3
7
8
9
2174
100u
3156
120R
2173
330p
1150
2177
100u
3157
120R
2176
330p
1151
AudioSupplyGnd
L-
L+
R+
R-
A12-66
A12-65
A12-68
A12-67
3161
47K
3162
47K
0234
0234A
Status
L + R
GND
TO SPEAKERS
(Stereo Sets with Subwoofer)
INDIA ONLY
L+
L-
R-
R+
TO SPEAKERS
(Stereo Sets w/o Subwoofer)
0215
L+
L-
TO SPEAKERS
(Mono Sets)
CL 86532104_058.eps
020399

| ITEM | W/O HEADPHONE | | WITH HEADPHONE | |
|---|---|---|---|---|
| | STEREO | MONO | STEREO | MONO |
| 4100 | JMP | JMP | - | - |
| 4101 | JMP | - | - | - |
| 9104 | - | - | - | JMP |

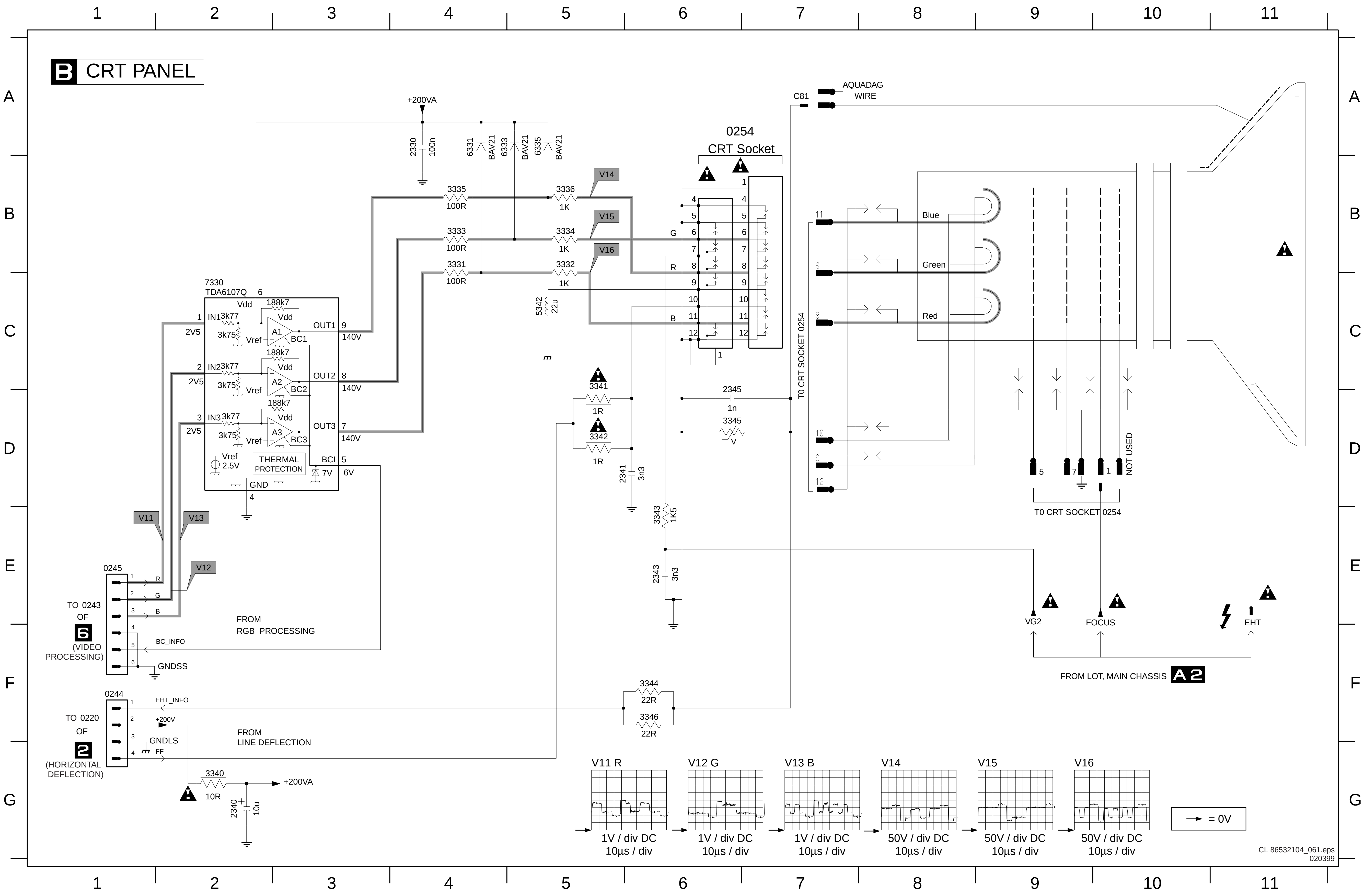
***Personal notes:***


A15 I/O SCART
SCART 1
0223-A
Audio R O/P
Audio R I/P
Audio L O/P
Audio L I/P
RGB B I/P
RF/SVHS Switching
RGB G I/P
RGB R I/P
RGB FB I/P
CVBS O/P
Video 1 I/P
SCART 2
0223-B
Audio R O/P
Audio R I/P
Audio L O/P
Audio L I/P
RF/Video2 Switching
SVHS C I/P
CVBS O/P
Video 2/SVHS Y I/P
ITV
0219
0216
0263
0227
TO 0252 OF SIDE AV PANEL
0229
TO 0253 OF SIDE AV PANEL
4144 (FOR SET W/O SIDE CINCH)
(From 3845 NICAM)
(To 2864 NICAM To 2839 BTSC)
(From 3844 NICAM From 9226-4006//3028 Tuner)
(To 2865 NICAM)
AudioOutR
Front|Ext1AudioR
AudioOutL|Mono
Front|Ext1AudioL
ExtAudioMono
Ext1B
P4ScartPin8|SVHS
Ext1G
Ext1R
Ext1FB
RGB_Blanking
Ext1Video
Ext2AudioR
Ext2AudioL|Mono
AV_Mute|Ext2Func_SW
Ext2C
CVBS_Terr
Ext2Video|Y
VideoOut
VlotAux+5v
7130 BC847C
7131 BC847C
7132 BC847C
7133 BC847C
7134 BC547B
CL 86532104_060.eps
020399

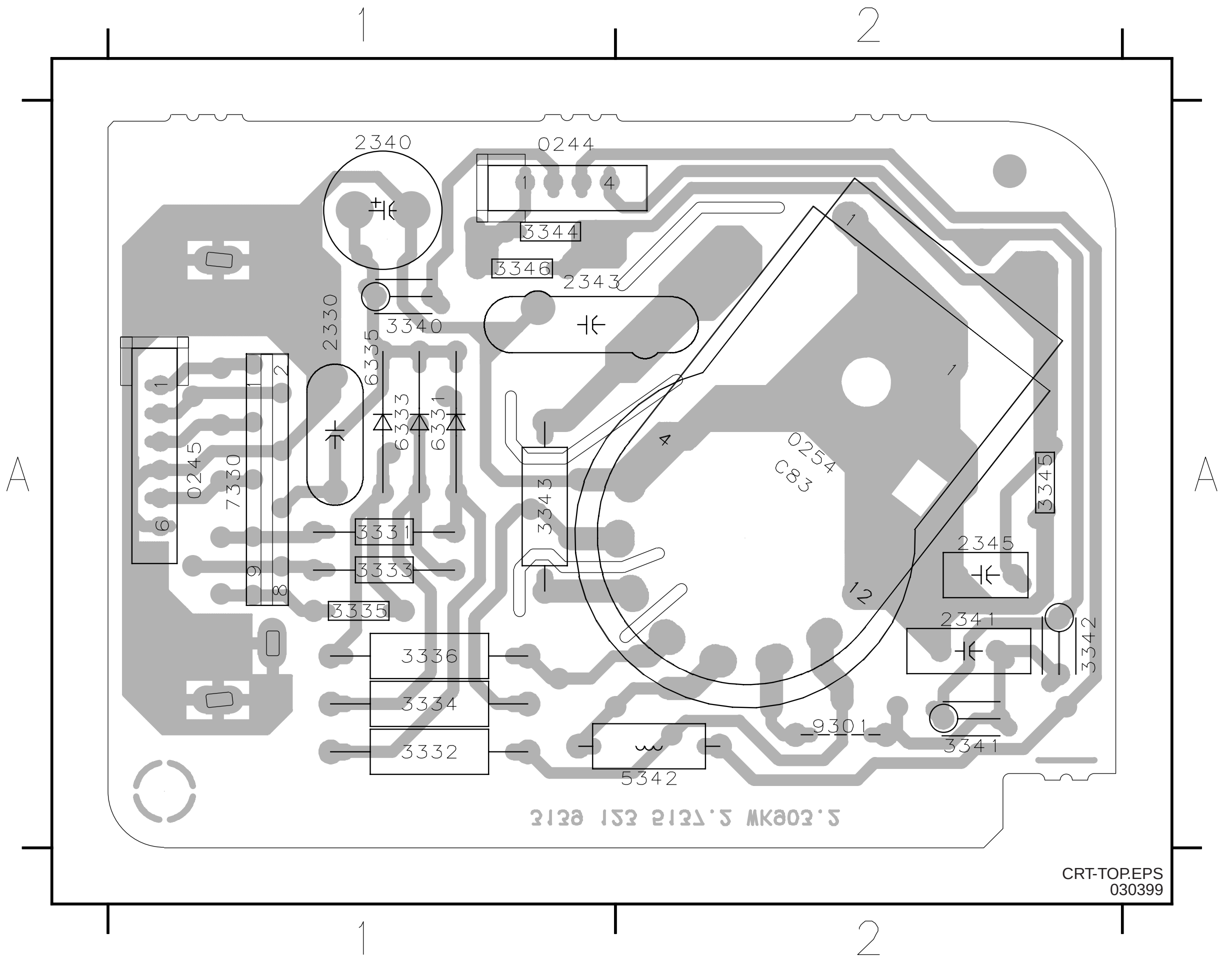
| # FOR MONO | |
|---|---|
| 4132 | ADD |
| 4134 | ADD |
| 2120 | ADD |
| | |

| * FOR SIDE CINCH | |
|---|---|
| 0227 | ADD |
| 0229 | ADD |
| 2107 | DEL |
| 2109 | DEL |
| 2113 | DEL |
| 2114 | DEL |
| 3131 | DEL |
| 3132 | DEL |
| 3136 | DEL |
| 3137 | DEL |
| 3142 | DEL |
| 4143 | DEL |
| 6124 | DEL |

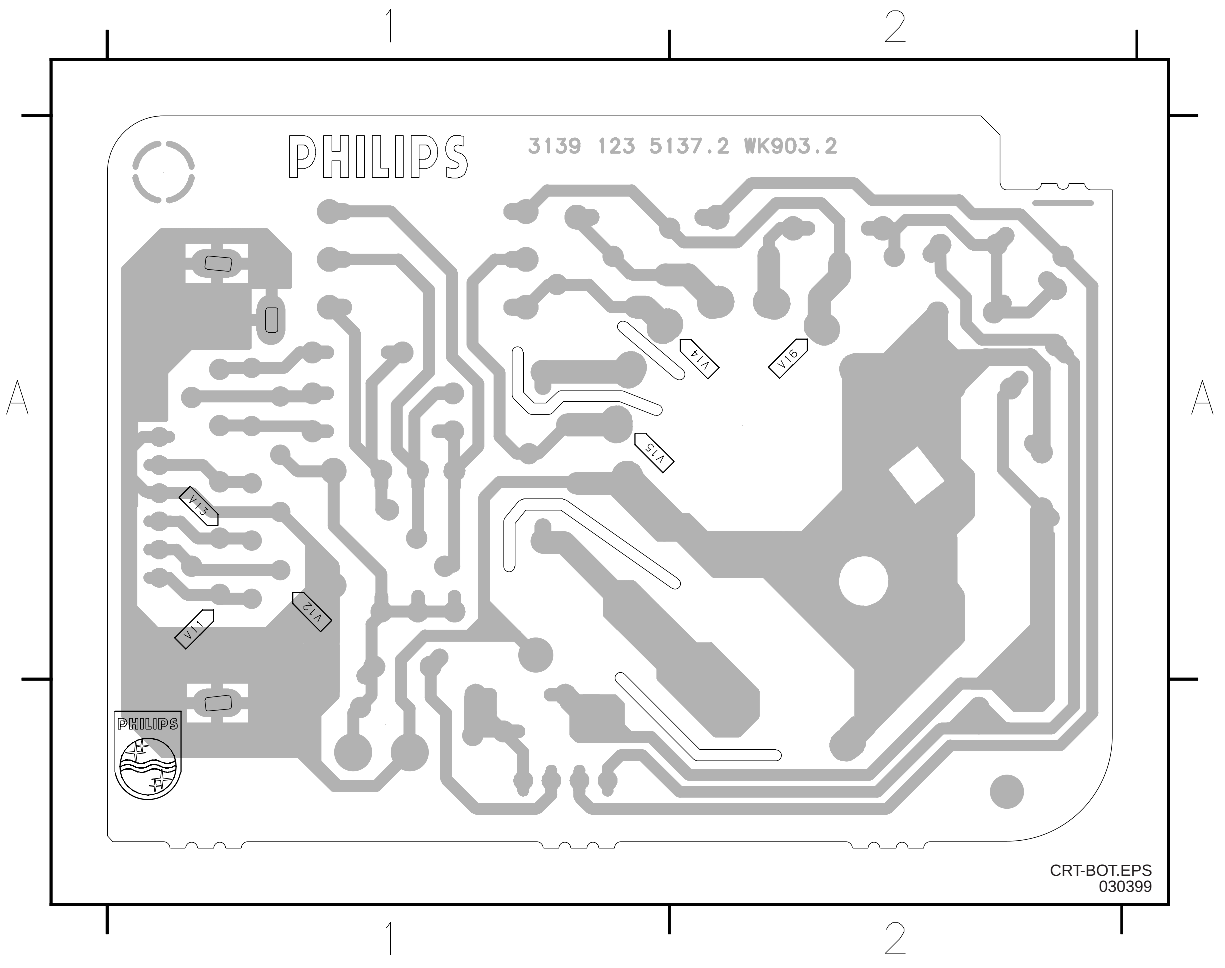
| | |
|---|---|
| 0216 | B10 |
| 0219 | A10 |
| 0223-A | A1 |
| 0223-B | E1 |
| 0227 | E4 |
| 0229 | H6 |
| 0263 | C10 |
| 1101 | B4 |
| 1102 | B3 |
| 1103 | B4 |
| 1104 | C2 |
| 1105 | C2 |
| 1106 | D2 |
| 1107 | D4 |
| 1108 | D4 |
| 1109 | D3 |
| 1110 | B3 |
| 1111 | F2 |
| 1112 | E2 |
| 1113 | F2 |
| 1114 | G2 |
| 1115 | G2 |
| 1117 | H2 |
| 1118 | E2 |
| 1132 | E2 |
| 1133 | G4 |
| 2101 | B3 |
| 2102 | B5 |
| 2103 | B3 |
| 2104 | B5 |
| 2105 | B2 |
| 2106 | B4 |
| 2107 | F3 |
| 2108 | B2 |
| 2109 | F3 |
| 2110 | B4 |
| 2111 | A4 |
| 2112 | B4 |
| 2113 | F2 |
| 2114 | F2 |
| 2115 | G6 |
| 2120 | B7 |
| 3100 | A3 |
| 3103 | B5 |
| 3104 | B5 |
| 3105 | B3 |
| 3108 | B5 |
| 3109 | B5 |
| 3112 | C3 |
| 3113 | C4 |
| 3114 | D4 |
| 3115 | D4 |
| 3116 | C3 |
| 3117 | D3 |
| 3118 | D4 |
| 3119 | D5 |
| 3123 | E2 |
| 3125 | E4 |
| 3131 | E3 |
| 3132 | F3 |
| 3134 | G5 |
| 3135 | F6 |
| 3136 | F3 |
| 3137 | F3 |
| 3138 | C4 |
| 3139 | C4 |
| 3140 | G3 |
| 3141 | G3 |
| 3142 | H3 |
| 3144 | G4 |
| 3145 | G6 |
| 3148 | D8 |
| 3149 | E6 |
| 3150 | E6 |
| 3151 | E7 |
| 3152 | E8 |
| 3153 | G4 |
| 3154 | G5 |
| 3155 | G5 |
| 4132 | B2 |
| 4134 | B4 |
| 4143 | G6 |
| 4144 | H4 |
| 5101 | F5 |
| 5110 | G7 |
| 6109 | C2 |
| 6110 | D2 |
| 6111 | D4 |
| 6112 | D4 |
| 6113 | E2 |
| 6122 | G2 |
| 6123 | G4 |
| 6124 | H2 |
| 6125 | D3 |
| 6126 | A3 |
| 6127 | B3 |
| 7130 | E5 |
| 7131 | E6 |
| 7132 | E7 |
| 7133 | E7 |
| 7134 | G5 |
| 9112 | F6 |


B CRT PANEL
+200VA
2330 100n
6331 BAV21
6333 BAV21
6335 BAV21
V14
V15
V16
3335 100R
3333 100R
3331 100R
3336 1K
3334 1K
3332 1K
5342 22u
7330 TDA6107Q
Vdd
188k7
IN1 IN2 IN3
3k77
3k75
2V5
Vref
A1 A2 A3
BC1 BC2 BC3
OUT1 OUT2 OUT3
140V
Vref 2.5V
THERMAL PROTECTION
BCI
7V
6V
GND
0254
CRT Socket
G R B
AQUADAG WIRE
C81
3341 1R
3342 1R
2341 3n3
2345 1n
3345 V
3343 1K5
2343 3n3
T0 CRT SOCKET 0254
Blue
Green
Red
NOT USED
VG2
FOCUS
EHT
FROM LOT, MAIN CHASSIS A2
V11
V13
V12
0245
TO 0243 OF 6 (VIDEO PROCESSING)
R G B
BC_INFO
GNDSS
FROM RGB PROCESSING
0244
TO 0220 OF 2 (HORIZONTAL DEFLECTION)
EHT_INFO
+200V
GNDLS
FF
FROM LINE DEFLECTION
3344 22R
3346 22R
3340 10R
2340 10u
V11 R
V12 G
V13 B
V14
V15
V16
1V / div DC 10µs / div
1V / div DC 10µs / div
1V / div DC 10µs / div
50V / div DC 10µs / div
50V / div DC 10µs / div
50V / div DC 10µs / div
= 0V
CL 86532104_061.eps
020399

| | |
|---|---|
| C81 | A7 |
| 0244 | F1 |
| 0245 | E1 |
| 0254 | A6 |
| 2330 | A4 |
| 2340 | G2 |
| 2341 | D6 |
| 2343 | E6 |
| 2345 | D6 |
| 3331 | B4 |
| 3332 | B5 |
| 3333 | B4 |
| 3334 | B5 |
| 3335 | B4 |
| 3336 | B5 |
| 3340 | G2 |
| 3341 | C5 |
| 3342 | D5 |
| 3343 | E6 |
| 3344 | F6 |
| 3345 | D6 |
| 3346 | F6 |
| 5342 | C5 |
| 6331 | A4 |
| 6333 | A4 |
| 6335 | A5 |
| 7330 | C2 |

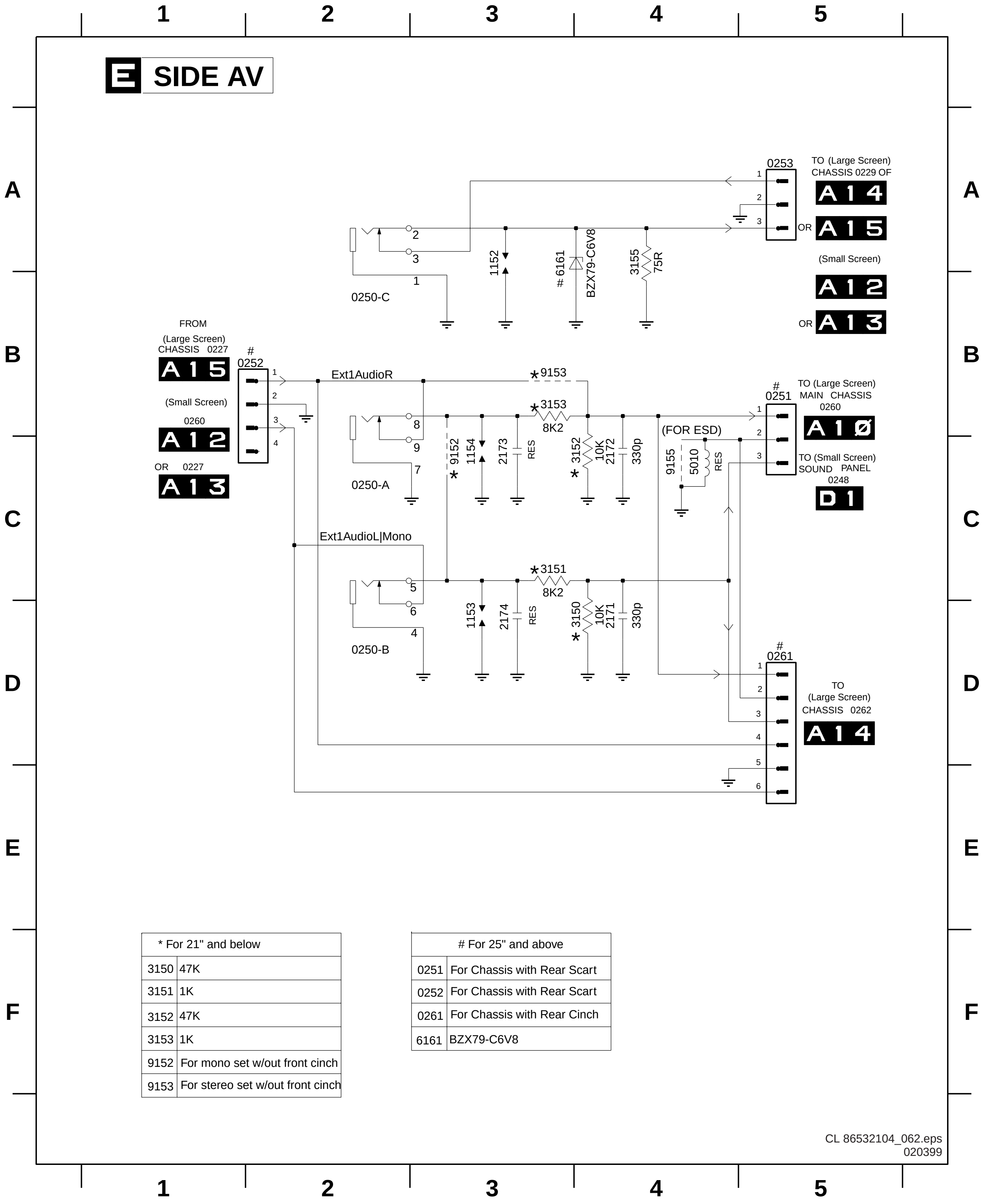

1
2
A
2340
0244
3344
3346
2343
2330
3340
6335
6333
6331
0245
7330
3343
0254
C83
3345
2345
2341
3342
3331
3333
3335
3336
3334
3332
5342
9301
3341
3139 123 5137.2 WK903.2
CRT-TOP.EPS
030399

| | |
|---|---|
| C83 | A2 |
| 0244 | A1 |
| 0245 | A1 |
| 0254 | A2 |
| 2330 | A1 |
| 2340 | A1 |
| 2341 | A2 |
| 2343 | A1 |
| 2345 | A2 |
| 3331 | A1 |
| 3332 | A1 |
| 3333 | A1 |
| 3334 | A1 |
| 3335 | A1 |
| 3336 | A1 |
| 3340 | A1 |
| 3341 | A2 |
| 3342 | A2 |
| 3343 | A1 |
| 3344 | A1 |
| 3345 | A2 |
| 3346 | A1 |
| 5342 | A2 |
| 6331 | A1 |
| 6333 | A1 |
| 6335 | A1 |
| 7330 | A1 |
| 9301 | A2 |


1
2
A
PHILIPS
3139 123 5137.2 WK903.2
CRT-BOT.EPS
030399

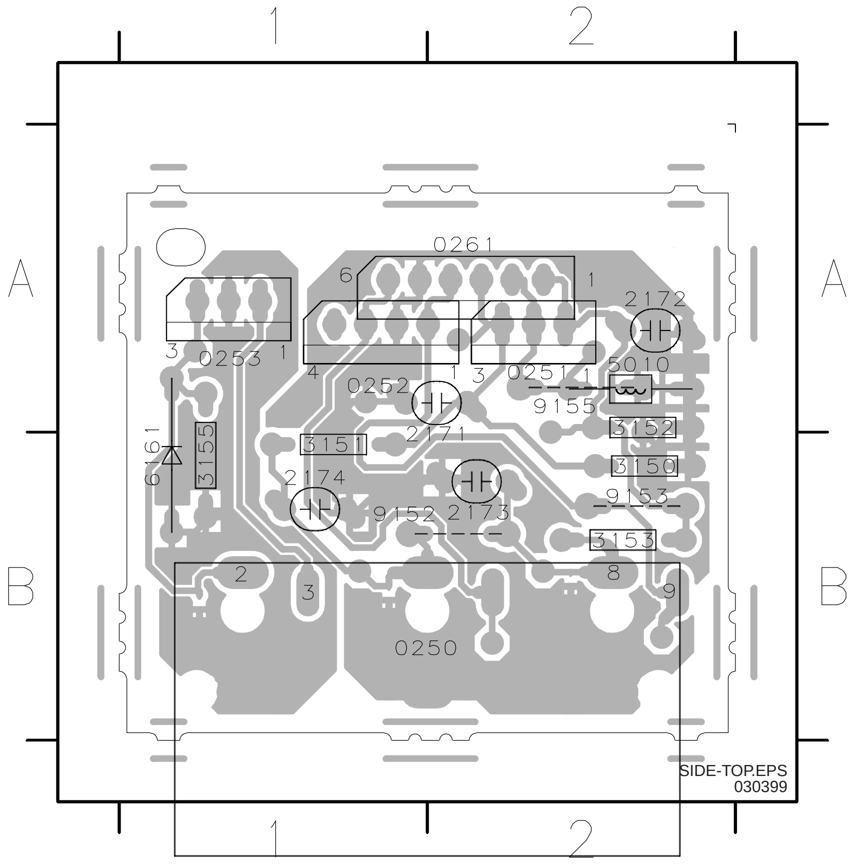
***Personal notes:***

| | |
|---|---|
| 0250-A | C2 |
| 0250-B | D2 |
| 0250-C | B2 |
| 0251 | B5 |
| 0252 | B2 |
| 0253 | A5 |
| 0261 | D5 |
| 1152 | A3 |
| 1153 | D3 |
| 1154 | C3 |
| 2171 | D4 |
| 2172 | C4 |
| 2173 | C3 |
| 2174 | D3 |
| 3150 | D4 |
| 3151 | C3 |
| 3152 | C4 |
| 3153 | B3 |
| 3155 | A4 |
| 5010 | C4 |
| 6161 | A3 |
| 9152 | C3 |
| 9153 | B3 |
| 9155 | C4 |


1
2
3
4
5
A
B
C
D
E
F
E SIDE AV
0253
TO (Large Screen) CHASSIS 0229 OF
A14
OR
A15
(Small Screen)
A12
OR
A13
2
3
1
0250-C
1152
# 6161
BZX79-C6V8
3155
75R
FROM
(Large Screen)
CHASSIS 0227
A15
(Small Screen)
0260
A12
OR 0227
A13
#
0252
Ext1AudioR
*9153
*3153
8K2
#
0251
TO (Large Screen)
MAIN CHASSIS
0260
A10
TO (Small Screen)
SOUND PANEL
0248
D1
(FOR ESD)
9155
5010
RES
8
9
7
0250-A
*9152
1154
2173
RES
*3152
10K
2172
330p
Ext1AudioL|Mono
*3151
8K2
5
6
4
0250-B
1153
2174
RES
*3150
10K
2171
330p
#
0261
TO
(Large Screen)
CHASSIS 0262
A14
CL 86532104_062.eps
020399

| * For 21" and below | |
|---|---|
| 3150 | 47K |
| 3151 | 1K |
| 3152 | 47K |
| 3153 | 1K |
| 9152 | For mono set w/out front cinch |
| 9153 | For stereo set w/out front cinch |

| # For 25" and above | |
|---|---|
| 0251 | For Chassis with Rear Scart |
| 0252 | For Chassis with Rear Scart |
| 0261 | For Chassis with Rear Cinch |
| 6161 | BZX79-C6V8 |


1
2
A
B
0261
6
1
2172
3
0253
1
4
0252
3
0251
5010
9155
2171
3152
6161
3155
3151
3150
2174
9152
2173
9153
3153
2
3
8
9
0250
SIDE-TOP.EPS
030399

| | |
|---|---|
| 0250 | B1 |
| 0251 | A2 |
| 0252 | A1 |
| 0253 | A1 |
| 0261 | A2 |
| 2171 | B2 |
| 2172 | A2 |
| 2173 | B2 |
| 2174 | B1 |
| 3150 | B2 |
| 3151 | B1 |
| 3152 | A2 |
| 3153 | B2 |
| 3155 | B1 |
| 5010 | A2 |
| 6161 | B1 |
| 9152 | B1 |
| 9153 | B2 |
| 9155 | A2 |

**Colour Television** **Chassis**

# L9.1A

## AA 00.01

Service
Service
Service

# Service Information

GB

In the 21PT3942 the mono-carrier PCB-layout L91A is introduced to improve the audio power and 1 new panel is added : Side AV panel & Headphone ( E1 ).
Entering the SDM has changed. By connecting pin 20 to ground at cold start.
Entering the SAM has changed. Shorting pin M28 and M29 is no longer valid.

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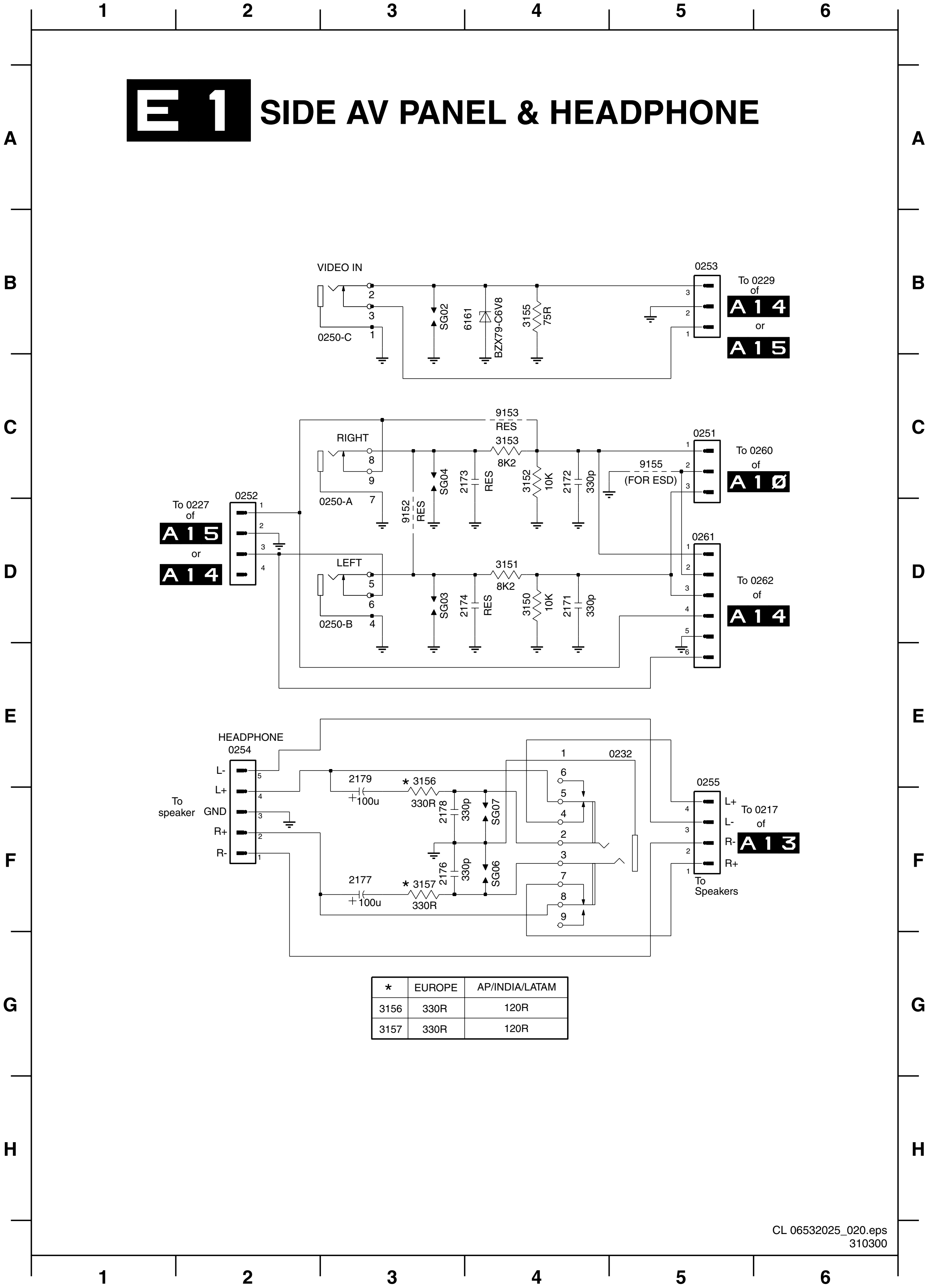
PHILIPS

# Electrical diagram and PWB

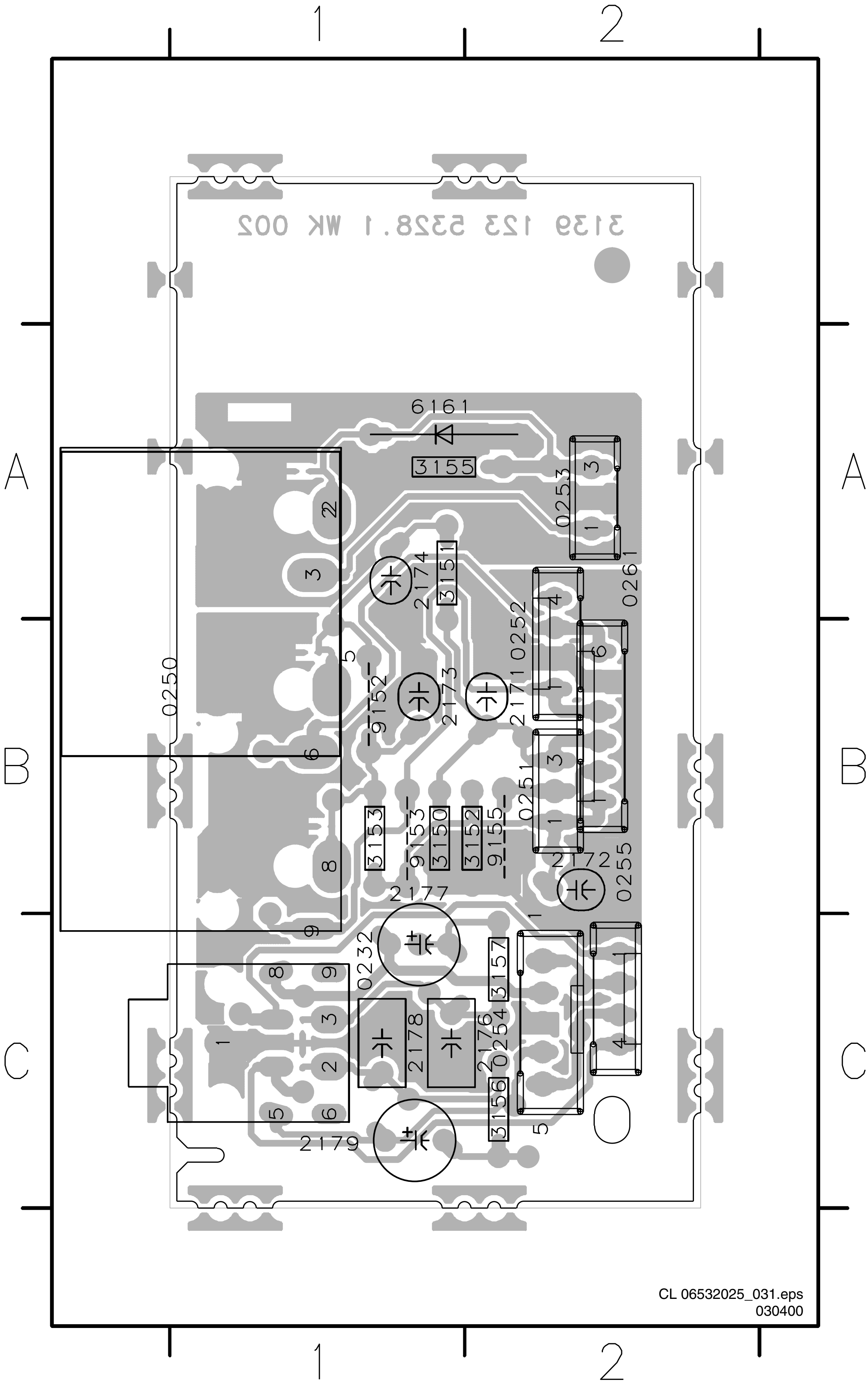
## Side AV panel & headphone


E 1 SIDE AV PANEL & HEADPHONE
1
2
3
4
5
6
A
B
C
D
E
F
G
H
VIDEO IN
0250-C
SG02
6161
BZX79-C6V8
3155
75R
0253
To 0229
of
A 1 4
or
A 1 5
9153
RES
RIGHT
3153
8K2
0250-A
SG04
2173
RES
3152
10K
2172
330p
9152
RES
9155
(FOR ESD)
0251
To 0260
of
A 1 Ø
To 0227
of
A 1 5
or
A 1 4
0252
LEFT
3151
8K2
0250-B
SG03
2174
RES
3150
10K
2171
330p
0261
To 0262
of
A 1 4
HEADPHONE
0254
L-
L+
GND
R+
R-
To
speaker
2179
100u
3156
330R
2178
330p
SG07
2177
100u
3157
330R
2176
330p
SG06
0232
0255
L+
L-
R-
R+
To 0217
of
A 1 3
To
Speakers
CL 06532025_020.eps
310300

| * | EUROPE | AP/INDIA/LATAM |
|---|---|---|
| 3156 | 330R | 120R |
| 3157 | 330R | 120R |

| | |
|---|---|
| 0232 | E4 |
| 0250-A | C3 |
| 0250-B | D3 |
| 0250-C | B3 |
| 0251 | C5 |
| 0252 | D2 |
| 0253 | B5 |
| 0254 | E2 |
| 0255 | E5 |
| 0261 | D5 |
| 2171 | D4 |
| 2172 | C4 |
| 2173 | C4 |
| 2174 | D4 |
| 2176 | F3 |
| 2177 | F3 |
| 2178 | F3 |
| 2179 | E3 |
| 3150 | D4 |
| 3151 | D4 |
| 3152 | C4 |
| 3153 | C4 |
| 3155 | B4 |
| 3156 | E3 |
| 3157 | F3 |
| 6161 | B3 |
| 9152 | D3 |
| 9153 | C4 |
| 9155 | C5 |
| SG02 | B3 |
| SG03 | D3 |
| SG04 | C3 |
| SG06 | F4 |
| SG07 | F4 |

## Side AV panel & headphone


1
2
A
B
C
3139 123 5328.1 WK 002
6161
3155
0253
0261
0252
2174
3151
0250
9152
2173
2171
0251
3153
9153
3150
3152
9155
2172
0255
2177
0232
3157
2178
2176
0254
3156
2179
CL 06532025_031.eps
030400

| | |
|---|---|
| 0232 | C1 |
| 0250 | B1 |
| 0251 | B2 |
| 0252 | B2 |
| 0253 | A2 |
| 0254 | C2 |
| 0255 | C2 |
| 0261 | B2 |
| 2171 | B2 |
| 2172 | B2 |
| 2173 | B1 |
| 2174 | A1 |
| 2176 | C1 |
| 2177 | C1 |
| 2178 | C1 |
| 2179 | C1 |
| 3150 | B1 |
| 3151 | A1 |
| 3152 | B2 |
| 3153 | B1 |
| 3155 | A1 |
| 3156 | C2 |
| 3157 | C2 |
| 6161 | A1 |
| 9152 | B1 |
| 9153 | B1 |
| 9155 | B2 |

# Spare parts list

## Side AV (E1)

### Various

| | | |
|---|---|---|
| 0021 | 3139 124 32391 | Side AV bracket |
| 0250 | 4822 265 11606 | Cinch 3 AV |
| 0253 | 4822 267 10735 | Connector 3P |
| 0261 | 2422 025 12482 | Connector 6P |

### ⊣⊢

| | | |
|---|---|---|
| 2171 | 4822 126 13512 | 50V 330pF 5% |
| 2172 | 4822 126 13512 | 50V 330pF 5% |
| 2173 | 4822 126 13512 | 50V 330pF 5% |
| 2174 | 4822 126 13512 | 50V 330pF 5% |

### -▭-

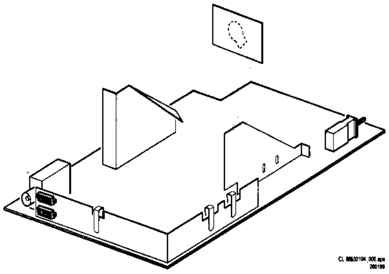
| | | |
|---|---|---|
| 3150▲ | 4822 050 21003 | 10k 5% 0.1W |
| 3151▲ | 4822 116 52303 | 8k2 5% 0.1W |
| 3152▲ | 4822 050 21003 | 10k 5% 0.1W |
| 3153▲ | 4822 116 52303 | 8k2 5% 0.1W |
| 3155▲ | 4822 116 52201 | 75Ω 5% 0.1W |

### -▶|-

| | | |
|---|---|---|
| 6161 | 4822 130 10852 | BZX284-C6V8 |

**Colour Television** **Chassis**

# L9.1E
## AA



Service
Service
**Service**

# Service Manual

## Table of contents

| | | | Page | |
|---|---|---|---|---|
| 1. | Technical specifications | | 2 | |
| 2. | Connection facilities and chassis overview | | 3 | |
| 3. | Safety and maintenance instructions | | 5 | |
| 4. | Mechanical instructions | | 7 | |
| 5. | Faultfinding and repair tips | | 8 | |
| 6. | Fault finding trees | | 17 | |
| | Supply voltages diagram | | 21 | |
| | Blockdiagram | | 22 | |
| | Testpoint overviews | | 23 | |
| 7. | Electrical Diagrams and print lay-outs | | | |
| | | | *Diagram* | *PWB* |
| | Power supply | diagram A1 | 24 | 32,34 |
| | Diversity tables | | 25 | 32,34 |
| | Horizontal deflection | diagram A2 | 26 | 32,34 |
| | Vertical deflection | diagram A3 | 27 | 32,34 |
| | Synchronisation | diagram A4 | 28 | 32,34 |
| | Tuner and VIF | diagram A5 | 29 | 32,34 |
| | Video processing | diagram A6 | 30 | 32,34 |
| | Control | diagram A7 | 31 | 32,34 |
| | Front Control | diagram A8 | 33 | 32,34 |
| | NICAM/2CS | diagram A10 | 36 | 32,34 |
| | Smart Sound | diagram A11 | 35 | 32,34 |
| | Audio amplifier | diagram A12 | 37 | 32,34 |
| | Headphone | diagram A13 | 38 | 32,34 |
| | IO Scart (Europe) | diagram A15 | 39 | 32,34 |
| | CRT panel | diagram B | 40 | 41 |
| | Side AV | diagram E | 42 | 42 |
| 8. | Alignments | | 43 | |
| 9. | Circuit description new circuits | | 48 | |
| 10. | Directions for use | | 54 | |
| 11. | List of abbreviations | | 60 | |
| 12. | Spare parts list | | 62 | |

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**PHILIPS**

# 1 Technical Specifications

Mains voltage : 90V - 276Vac; 50-60Hz

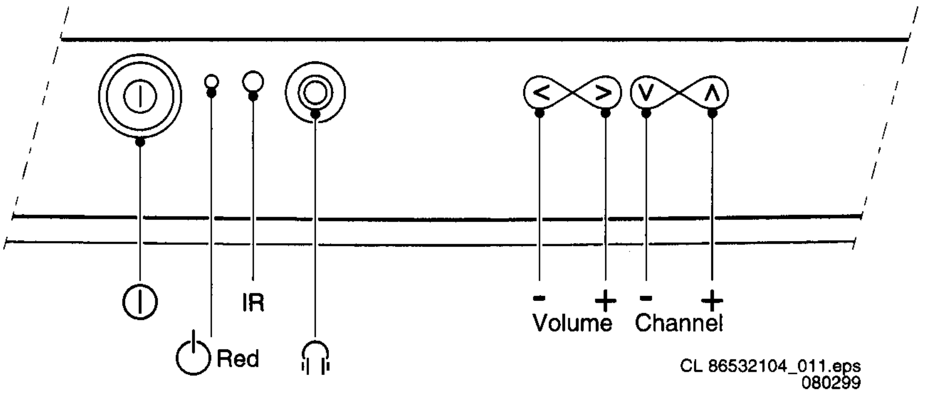
Maximum power consumption

- 25" : 75W +/- 10%
- 28" : 90W +/- 10%
- 29" : 90W +/- 10%

Standby power consumption : 6W +/- 10%
Colour Synchronisation :
Sub-carrier pull in range : +/- 300Hz
Horizontal Synchronisation :
Catching range : +/- 600 Hz
Holding range : +/- 1200 Hz
Vertical Lock Range : 49 Hz - 61Hz
Tuners : UV 1316/AI-2 (PAL/SECAM)

# 2 Connection facilities and chassis overview

## 2.1 Specification of the terminal sockets



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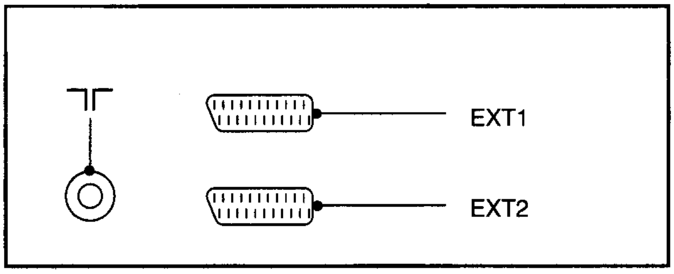
080299

Figure 2-1



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080299

Figure 2-2

### 2.1.1 *Scart 1: CVBS(in/out) + RGB(in) - tuner at output*

| | | |
|---|---|---|
| 1 - | Audio Out R (0.5Vrms <= 1kΩ) | ○→ |
| 2 - | Audio In R (0.2-2Vrms >= 10kΩ) | →⊙ |
| 3 - | Audio Out L (0.5Vrms <= 1kΩ) | ○→ |
| 4 - | Earth screen | ⊥ |
| 5 - | Earth screen | ⊥ |
| 6 - | Audio In L (0.2-2Vrms >= 10kΩ) | ○→ |
| 7 - | Blue (0.7Vpp/75Ω) | ○→ |
| 8 - | CVBS status (INT = 0-2V, EXT(16:9) = 4.5-7V, EXT(4:3) = 9.5-12V) | |
| 9 - | Earth screen | ⊥ |
| 10- | - | |
| 11- | Green (0.7Vpp/75Ω) | →⊙ |
| 12- | - | |
| 13- | Earth screen | ⊥ |
| 14- | Earth screen | ⊥ |
| 15- | Red (0.7Vpp/75Ω) | →⊙ |
| 16- | FBL (>0.9V RGB mode ) | |
| 17- | Earth screen | ⊥ |
| 18- | Earth screen | ⊥ |
| 19- | CVBS | ○→ |
| 20- | CVBS (1Vpp/75Ω) | →⊙ |
| 21- | Earth screen | ⊥ |

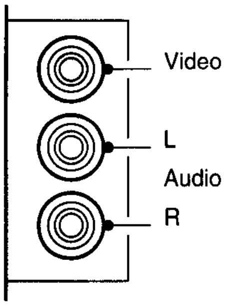
### 2.1.2 *Scart 2: CVBS (in/out) + SVHS(in)*

Input = EXT2 => output = tuner

Input = tuner/EXT1 => output = tuner/EXT1

| | | |
|---|---|---|
| 1 - | Audio Out R (0.5Vrms <= 1kΩ) | ○→ |
| 2 - | Audio In R (0.2-2Vrms >= 10kΩ) | →⊙ |
| 3 - | Audio Out L (0.5Vrms <= 1kΩ) | ○→ |
| 4 - | Earth screen | ⊥ |
| 5 - | Earth screen | ⊥ |
| 6 - | Audio In L (0.2-2Vrms >= 10kΩ) | →⊙ |
| 7 - | - | |
| 8 - | CVBS status (INT = 0-2V, EXT(16:9) = 4.5-7V, EXT(4:3) = 9.5-12V) | |
| 9 - | Earth screen | ⊥ |
| 10- | - | |
| 11- | - | |
| 12- | - | |
| 13- | Earth screen | ⊥ |
| 14- | Earth screen | ⊥ |
| 15- | C (300mVpp/75Ω) | →⊙ |
| 16- | - | |
| 17- | Earth screen | ⊥ |
| 18- | Earth screen | ⊥ |
| 19- | CVBS | ○→ |
| 20- | CVBS/Y (1Vpp/75Ω) | →⊙ |
| 21- | Earth screen | ⊥ |

### 2.1.3 *Cinch - audio/video in*



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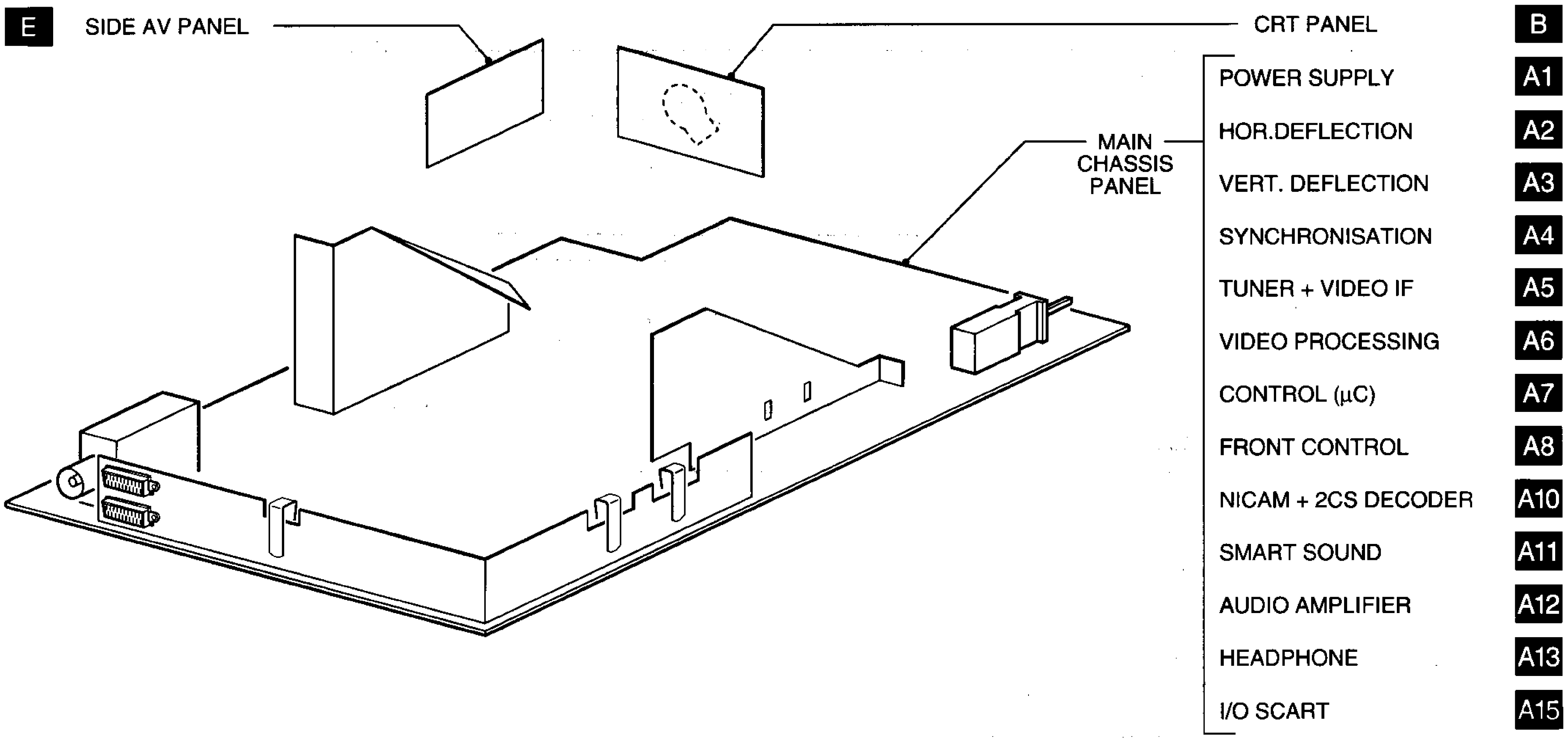
080299

| | | |
|---|---|---|
| 1 - | CVBS (yellow)(1Vpp 75Ω) | ◎ |
| 2 - | Audio L (red) (0.2-2Vrms 10kΩ) | ◎ |
| 3 - | Audio R (white) (0.2-2Vrms 10kΩ) | ◎ |

### 2.1.4 *Headphone*

| | | |
|---|---|---|
| 1 - | 8-600Ω (4mW) | 🎧 |

## 2.2 PCB location drawing


E
SIDE AV PANEL
CRT PANEL
B
MAIN CHASSIS PANEL
POWER SUPPLY
A1
HOR.DEFLECTION
A2
VERT. DEFLECTION
A3
SYNCHRONISATION
A4
TUNER + VIDEO IF
A5
VIDEO PROCESSING
A6
CONTROL (µC)
A7
FRONT CONTROL
A8
NICAM + 2CS DECODER
A10
SMART SOUND
A11
AUDIO AMPLIFIER
A12
HEADPHONE
A13
I/O SCART
A15

CL 86532104_003.eps
170299

# 3 Safety and maintenance instructions

## 3.1 Safety instructions for repairs

Figure 3-1

1. Safety regulations require that during a repair:
   - the set should be connected to the mains via an isolating transformer;
   - safety components, indicated by the symbol (see fig. 3.1), should be replaced by components identical to the original ones;
   - when replacing the CRT, safety goggles must be worn.

2. Safety regulations require that after a repair the set must be returned in its original condition. In particular attention should be paid to the following points.
   - As a strict precaution, we advise you to resolder the solder joints through which the horizontal deflection current is flowing, in particular:
     - all pins of the line output transformer (LOT);
     - fly-back capacitor(s);
     - S-correction capacitor(s);
     - line output transistor;
     - pins of the connector with wires to the deflection coil;
     - other components through which the deflection current flows.

     Note: This resoldering is advised to prevent bad connections due to metal fatigue in solder joints and is therefore only necessary for television sets older than 2 years. The wire trees and EHT cable should be routed correctly and fixed with the mounted cable clamps.

   - The insulation of the mains lead should be checked for external damage.
   - The mains lead strain relief should be checked for its function in order to avoid touching the CRT, hot components or heat sinks.
   - The electrical DC resistance between the mains plug and the secondary side should be checked (only for sets which have a mains isolated power supply). This check can be done as follows:
     - unplug the mains cord and connect a wire between the two pins of the mains plug;
     - set the mains switch to the on position (keep the mains cord unplugged!);
     - measure the resistance value between the pins of the mains plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 MΩ and 12 MΩ;
     - switch off the TV and remove the wire between the two pins of the mains plug.

   - The cabinet should be checked for defects to avoid touching of any inner parts by the customer.

## 3.2 Maintenance instruction

It is recommended to have a maintenance inspection carried out by a qualified service employee. The interval depends on the usage conditions:

- When the set is used under normal circumstances, for example in a living room, the recommended interval is 3 to 5 years.
- When the set is used in circumstances with higher dust, grease or moisture levels, for example in a kitchen, the recommended interval is 1 year.
- The maintenance inspection contains the following actions:
  - Execute the above mentioned 'general repair instruction'.
  - Clean the power supply and deflection circuitry on the chassis.
  - Clean the picture tube panel and the neck of the picture tube.

## 3.3 Warnings

1. ESD
   All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential.
   - complete kit ESD3 small table mat, wristband, connectionbox, extensioncable and earthcable 4822 310 10671
   - wristband tester 4822 344 13999

2. In order to prevent damage to ICs and transistors, all high-voltage flashovers must be avoided. In order to prevent damage to the picture tube, the method shown in Fig. 3.2 should be used to discharge the picture tube. Use a high-voltage probe and a multimeter (position DC-V). Discharge until the meter reading is 0V (after approx. 30s).
3. Together with the deflection unit and any multipole unit, the flat square picture tubes used from an integrated unit. The deflection and the multipole units are set optimally at the factory. Adjustment of this unit during repair is therefore not recommended.
4. Be careful during measurements in the high-voltage section and on the picture tube.
5. Never replace modules or other components while the unit is switched on.
6. When making settings, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.
7. Wear safety goggles during replacement of the picture tube

## 3.4 Notes

1. The direct voltages and oscillograms should be measured with regard to the tuner earth , or hot earth as this is called (see fig. 3.3)
2. The direct voltages and oscillograms shown in the diagrams are indicative and should be measured in the Service Default Mode (see chapter 8) with a colour bar signal and stereo sound (L:3 kHz, R:1 kHz unless stated otherwise) and picture carrier at 475.25 MHz.
3. Where necessary, the oscillograms and direct voltages are measured with and without aerial signal. Voltages in the power supply section are measured both for normal operation and in standby . These values are indicated by means of the appropriate symbols (see fig. 3.3).
4. The picture tube PWB has printed spark gaps. Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.
5. The semiconductors indicated in the circuit diagram and in the parts lists are completely interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.

6. Manufactured under license from Dolby Laboratories Licensing Corporation.
7. DOLBY, the double D symbol and PRO LOGIC are trademarks of Dolby Laboratories Licensing Corporation.

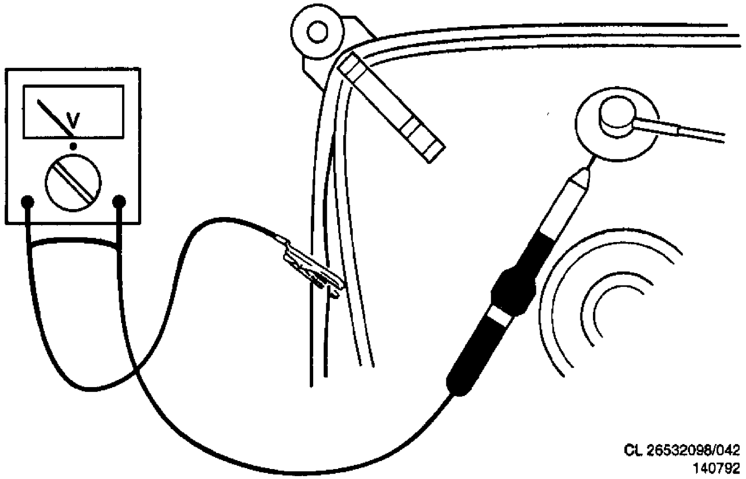


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Figure 3-2

| | | | |
|---|---|---|---|
| ⊥ | tuner earth<br>tuner aarde<br>la masse du tuner<br>Tuner-Erde<br>massa del tuner<br>tierra del sintonizador | ⊥ϟ | hot earth<br>hete aarde<br>la terre directe<br>heißen Erde<br>massa calda<br>tierra caliente |
| ⊤ | with aerial signal<br>met antenne signaal<br>avec signal d'antenne<br>mit Antennensignal<br>con segnale d'antenna<br>con la señal de antena | ⊤̸ | without aerial signal<br>zonder antenne signaal<br>sans signal d'antenne<br>ohne Antennensignal<br>senza segnale d'antenna<br>sin la señal de antena |
| ⏽ | normal condition<br>normaal bedrijf<br>fonctionnement normal<br>normaler Betrieb<br>funzionamento normale<br>funcionamiento normal | ⏻ | stand by<br>stand by<br>position de veille<br>in Bereitschaft<br>modo di attesa<br>posición de espera |

Figure 3-3

# 4 Mechanical instructions

## 4.1 Service positions

See figure 4.1 for the service position.

1. Disconnect the connecting cable feeding the right-hand speaker, also disconnect the degaussing cable.
2. The mono-carrier is removed by pushing the two centre clips (1) at both chassis brackets outwards and pulling the panel forward. (2)
3. Flip the mono-carrier over so that the component side of the board faces towards the CRT.
4. Slide the metal heat sink underneath the left chassis bracket (3) until the carrier is locked in position.

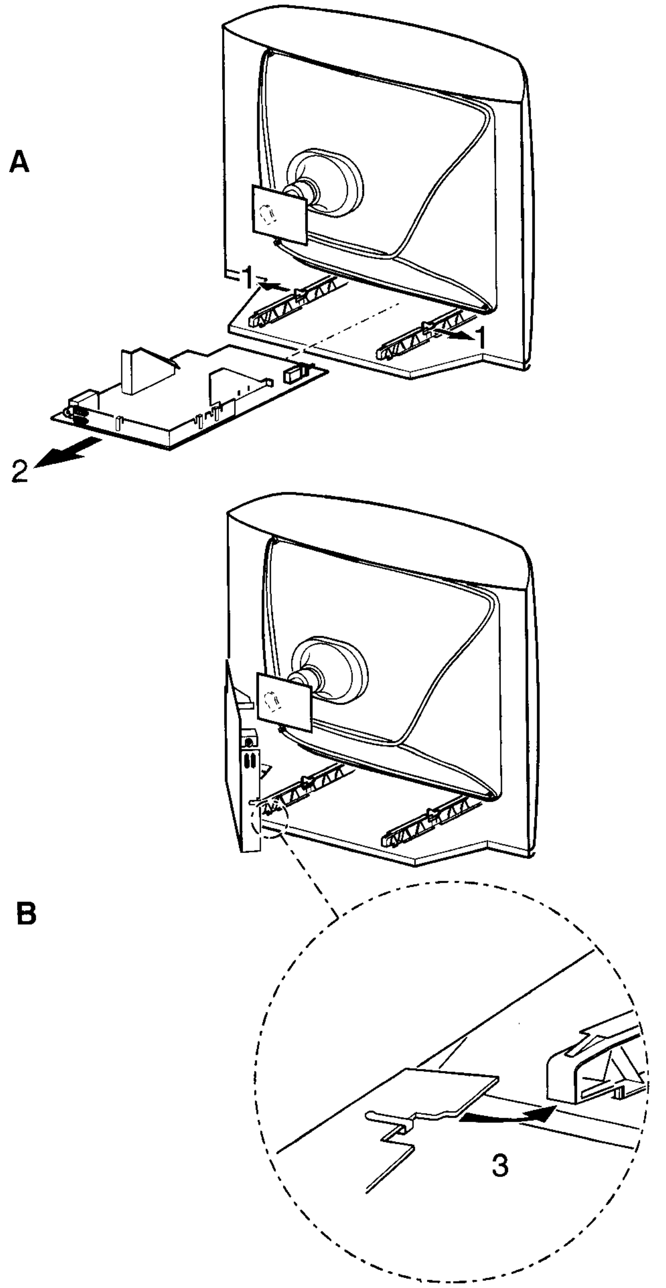

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Figure 4-1

# 5 Fault finding and repair tips

This chapter includes information covering:

5.1 Test points
5.2 Service Modes and Dealer Service Tool (DST)
5.3 The menus and submenus
5.4 Error code buffer and error codes
5.5 The "blinking LED" procedure
5.6 Trouble shooting tips
5.7 Customer service mode
5.8 Compair
5.9 Ordering Compair

## 5.1 Test points

The L9.1E chassis is equipped with easily identifiable test points. These are clearly marked on the PCB. The test points refer to specific functional blocks, these are:

- A1-A2-A3, etc.: Test points for the Nicam + 2CS decoder / Audio amplifier
- C1-C2-C3, etc.: Test points for the control circuit / front control
- F1-F2-F3, etc.: Test points for the vertical deflection circuit
- I1-I2-I3, etc.: Test points for the intermediate frequency circuit
- L1-L2-L3, etc.: Test points for the horizontal deflection circuit
- P1-P2-P3, etc.: Test points for the power supply
- S1-S2-S3, etc.: Test points for the synchronisation circuit
- V1-V2-V3, etc.: Test points for the video processing circuitry / CRT panel

Measurements are performed under the following conditions:

Video: colour bar signal; audio: 3kHz left, 1kHz right

## 5.2 Service modes and Dealer Service Tool (DST)

For easy installation and diagnosis, the dealer service tool (DST) RC7150 can be used. When there is no picture (to access the error code buffer via the OSD). The DST can enable the set to display the entire contents of the error code buffers by using the flashing LED procedure.

Important Note: The L9.1E does not incorporate two way Infra red communication.

The part number for the DST (RC7150) is 4822 218 21232.

### 5.2.1 *Installation features for the dealer*

The dealer can use the RC7150 for programming the TV-set with presets. 10 Different program tables can be programmed into the DST via a GFL TV, MD or MG set (downloading from the TV to the DST; for example see the GFL service manuals) or by the DST-I (DST interface; part number 4822 218 21277). For an explanation of the installation features of the DST, please see the directions of use for use of the DST (for the L9.1E chassis, download code 4 should be used).

### 5.2.2 *Diagnosis features for the servicer*

L9.1E models can be put into either of the two available service modes by using the RC7150. These are the Service Default Mode (SDM) and the Service Alignment Mode (SAM).

### 5.2.3 *Service Default Mode (SDM)*

The purpose of the SDM is:

- Used to provide a pre defined situation (pre-defined parameters), so that the same measurements can be obtained as per the service manual.
- Overrides the 5V protection when the internal method of SDM is used (connecting together pin 24 and pin 25).
- starts the LED flashing procedure
- Setting up of options codes
- Inspect the error buffer

Entering the SDM:

- By transmitting the "DEFAULT" command with the RC7150 Dealer Service Tool (this works both while the set is in normal operation mode or in the SAM)
- Standard RC sequence 062596 followed by the key "MENU"
- By connecting test-points M25 and M24s together (on the mono-carrier) while switching on the set. After switching on the set the link should be removed ( Caution!! By entering the SDM mode you Override the 5V protections ).

Exit the SDM:

Switch the set to Standby or press EXIT on the DST (the error buffer is also cleared).

Note: When the mains power is switched off while the set is in SDM, the set will switch to SDM immediately when the mains is switched on again. ( The error buffer will be cleared ).

The SDM sets the following pre-defined conditions:

- Pal/Secam sets: tuning at 475.25 PAL (For France select the L'-signal )

Volume level is set to 25% (of the maximum volume level). Other picture and sound settings are set to 50%. The following functions are "ignored" in SDM since they interfere with diagnosing/repairing a set. "Ignoring" means that the event that is triggered is not executed, the setting remains unchanged.

- (Sleep)Timer
- Blue mute
- Auto switch off
- Hotel or Hospitality Mode
- Child lock or Parental lock
- Skipping, blanking of "Not favourite" present/channels
- Automatic storing of Personal Preset settings
- Automatic user menu time-out

All other controls operate normally.

### 5.2.4 *Special functions in SDM*

Access to normal user menu

Pressing the "MENU" button on the remote control will enter the normal user menu ( TV lock, Installation, Brightness, colour and contrast ) while "SMD" remains displayed in top of screen). Pressing the "MENU" key again will return to the last SDM status.

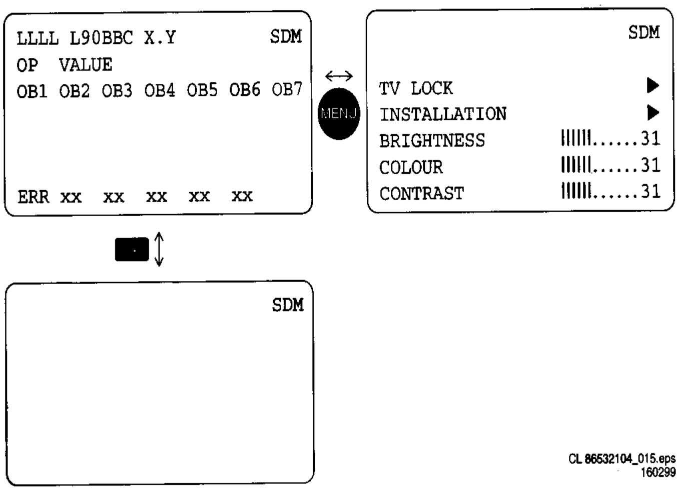
Error buffer

Pressing the "OSD" button of the remote control shows all OSD (incl. error buffer).

Access to SDM

By pressing the "CHANNEL DOWN" and "VOLUME DOWN" buttons on the local keyboard simultaneously the set switches from SDM to SAM or pressing "ALIGN" on the DST

In the SDM the following information is displayed on the screen:



```
LLLL L90BBC X.Y             SDM
OP  VALUE
OB1 OB2 OB3 OB4 OB5 OB6 OB7


ERR xx  xx  xx  xx  xx
```

```
                            SDM

TV LOCK                       ▶
INSTALLATION                  ▶
BRIGHTNESS          ||||||......31
COLOUR              ||||||......31
CONTRAST            ||||||......31
```

```
                            SDM
```

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**Figure 5-1 : Service Default Mode screens and structure**

Explanation notes/references:

(1) "LLLL" Operation hours timer (hexadecimal)

(2) Software identification of the main micro controller (L90BBC X.Y)

- L90 is the chassis name for L9.0E
- BBC is a 2 letter and 1 digit combination that indicates the software type and the supported languages:
- X = (main version number)
- Y = (subversion number) BB = (range specification )

(3) "SDM" To indicate that the TV set is in de service mode

(4) "OP" Options Code consist of 2 characters. It is possible to change each option code

"VALUE" The value of the selected option ( ON/OFF or a combination of 2 letters )

"XXX" Value of the options bytes ( OB1 .. OB7)

"ERR" The last five detected errors; The left most number indicates the most recent error detected.

The MENU UP or MENU DOWN command can be used to select the next/previous option; The MENU LEFT and MENU RIGHT command can be used to change the option value.

Remark: When the option-code RC = OFF, the P+ and the P- key have the same functions as the MENU UP/DOWN keys while the VOL+ and the VOL- key have the same function as the MENU LEFT/RIGHT keys. It is not possible to change the channel pre-set or to adjust the volume when in SAM/SDM menu when the option RC = OFF.

Using a L9.1E remote control, option-code RC = ON, the P+, P-, VOL- and VOL+ can be used to change the pre-set and/or to adapt the volume, while the menu-cursor keys are used to select the option and to change its value.

For an extended overview of the option codes see Chapter 8 - Options

### 5.2.5 *Service Alignment Mode (SAM)*

The SAM allows adjustment of the Demodulator I.F, align the white tone, adjust the picture geometry and sound adjustments.

For easy identification of the SAM mode, "SAM" is displayed in the top of the right side of the screen

Entering SAM:

- By transmitting the "ALIGN" command with the RC7150 Dealer Service Tool
- By pressing the "CHANNEL DOWN" and "VOLUME DOWN" key on the local keyboard simultaneously when the set is in SDM
- Standard RC sequence 062596 followed by the key "OSD"
- By shorting test-point M28 and M29 on the mono-carrier while switching on the set. After switching on the set the short-circuit can be removed. ( Caution!! Override of 5V protections ).

Exiting the SAM:

Switch the set to standby or press EXIT on the DST (the error buffer is not cleared).

Note: When the mains power is switched off while the set is in SAM, the set will switch to SAM immediately when the mains is switched on again. ( The error buffer will not be cleared ).

In the SAM the following information is displayed on the screen:

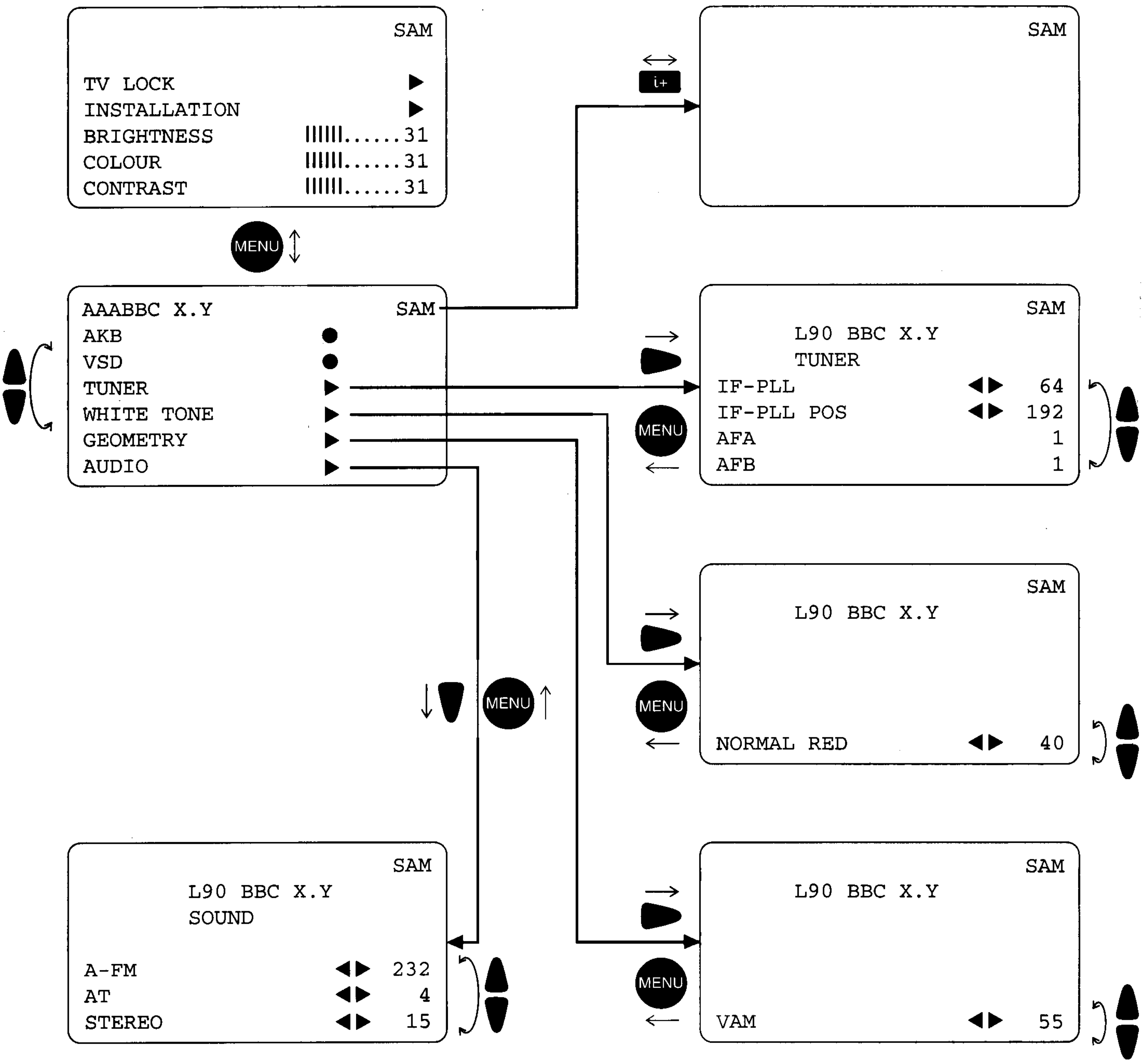
SAM
TV LOCK ▶
INSTALLATION ▶
BRIGHTNESS ||||||......31
COLOUR ||||||......31
CONTRAST ||||||......31
MENU
AAABBC X.Y
SAM
AKB ●
VSD ●
TUNER ▶
WHITE TONE ▶
GEOMETRY ▶
AUDIO ▶
i+
SAM
SAM
L90 BBC X.Y
TUNER
IF-PLL ◀▶ 64
IF-PLL POS ◀▶ 192
AFA 1
AFB 1
MENU
SAM
L90 BBC X.Y
NORMAL RED ◀▶ 40
MENU
MENU
SAM
L90 BBC X.Y
SOUND
A-FM ◀▶ 232
AT ◀▶ 4
STEREO ◀▶ 15
SAM
L90 BBC X.Y
VAM ◀▶ 55
MENU

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Figure 5-2 : Service Alignment Mode screens and structure

**Access to normal user menu**
Pressing the "MENU" button on the remote control will enter the normal user menu ( TV lock, installation, brightness, colour and contrast ) while "SAM" remains displayed in top of screen. Pressing the "MENU" key again will return to the last SAM status.

Pressing the "OSD" button of the remote control shows only "SAM" in the top of screen

**Access to SDM**
Pressing the "DEFAULT" button on the DST

**SAM menu control**
Menu items (AKB, VSD, Tuner, White tone, Geometry and Sound) can be selected with the MENU Up or MENU DOWN key. Entry into the selected items (sub menus) is done by the MENU LEFT or MENU RIGHT key. The selected item will be highlighted.

With the cursor LEFT/RIGHT keys, it is possible to increase/ decease the value of the selected item.

## 5.3 The menus and submenus

### *5.3.1 Tuner sub menu*

The tuner sub menu contains the following items:

- IF_PLL: PLL Alignment for all PAL/SECAM systems, excluding SECAM-LL'
- IF_PLL POS: PLL Alignment for SECAM-LL'
- IF_PLL OFFSET: Default value = 48 ; Do not align
- AFW: AFC Window
- AGC: AGC take-over point
- YD: Default value = 12 ; Do not align
- CL: Default value = 4 ; Do not align
- AFA
- AFB

The items AFA and AFB can not be selected, they are for monitoring purposes only.

The commands MENU UP and MENU DOWN are used to select the next/previous item.

The commands MENU LEFT and MENU RIGHT are used to increase/decrease the value of the selected item. The changed values will be send directly to the related hardware.

The item values are stored in NVM if this sub menu is left.

### *5.3.2 White tone sub menu*

The white tone sub menu contains the following items:

- NORMAL RED
- NORMAL GREEN
- NORMAL BLUE
- DELTA COOL RED
- DELTA COOL GREEN
- DELTA COOL BLUE
- DELTA WARM RED
- DELTA WARM GREEN
- DELTA WARM BLUE

OSD is kept to a minimum in this menu, in order to make white tone alignment possible.

The commands MENU UP and MENU DOWN are used to select the next/previous item.

The commands MENU LEFT and MENU RIGHT are used to increase/decrease the value of the selected item. The changed values will be send directly to the related hardware.

The item values are stored in NVM if this sub menu is left.

The Contrast Plus feature (black stretch) is set to OFF when the white tone submenu is entered.

### *5.3.3 Audio sub menu*

The audio sub menu contains the following items:

- A-FM: Default value = 232 ; Do not align
- AT: Default value = 4 ; Do not align
- STEREO: Default value = 15 ; Do not align
- DUAL: Default value = 12 ; Do not align

The sound adjustments sub menu are not available in Mono sets.

The presence of an item in the menu is dependent on the selected soundboard (option SB).

The commands MENU UP and MENU DOWN are used to select the next/previous item.

The commands MENU LEFT and MENU RIGHT are used to increase/decrease the value of the selected item. The changed values will be sent directly to the related hardware.

The item values are stored in NVM if this sub menu is left.

### *5.3.4 Geometry sub menu*

The geometry sub menu contains the following items:

- SBL : Service blanking
- VSL : Vertical slope
- VAM : Vertical amplitude
- VSH : Vertical shift
- HSH : Horizontal shift
- VSC : Vertical S correction
- H60 : Default value = 10 ; Do not align
- V60 : Default value = 12 ; Do not align
- EWC : E-W corner
- EWT : E-W trapezium
- EWP : E-W parabola
- EWW : E-W width

## 5.4 Error code buffer and error codes

### *5.4.1 Error code buffer*

The error code buffer contains all errors detected since the last time the buffer was erased. The buffer is written from left to right.

- when an error occurs that is not yet in the error code buffer, the error is written at the left side and all other errors shift one position to the right
- the error code buffer will be cleared in the following cases:
  1. exiting SDM or SAM with the "Standby" command on the remote control
  2. transmitting the commands "EXIT" with the DST (RC7150)
  3. transmitting the commands "DIAGNOSE-9-9-OK" with the DST.

- By leaving SDM or SAM with the mains switch, the error buffer is not reset.

Examples:

ERROR: 0 0 0 0 0 : No errors detected

ERROR: 6 0 0 0 0 : Error code 6 is the last and only detected error

ERROR: 5 6 0 0 0 : Error code 6 was first detected and error code 5 is the last detected (newest) error

### 5.4.2 *Error codes*

In the case of non-intermittent faults, clear the error buffer before starting the repair to prevent "old" error codes being present. If possible check the entire contents of the error buffers. In some situations an error code is only the RESULT of another error code (and not the actual cause).

Note: a fault in the protection detection circuitry can also lead to a protection.

Error 0 = No error

Error 1 = X-ray ( Only for USA sets )

Error 2 = High beam current protection and E/W Horizontal protection

High beam protection active; set is switched to protection; error code 2 is placed in the error buffer; the LED will blink 2 times ( repeatedly ).

As the name implies, the cause of this protection is a too high beam current (bright screen with flyback lines). Check whether the +200V supply to the CRT panel is present. If the voltage is present, the most likely cause is a fault on the CRT panel. Disconnect the CRT panel to determine the cause. If the +200V voltage is not present, check R3340 ( CRT panel - B ), R3485 and D6485 ( Horizontal Deflection - A2 )

EW protection:

If this protection is active, the causes could be one of the following;

- horizontal deflection coil 5445
- linearity coil 5457
- S-correction capacitor 2466/2468
- flyback capacitor 2465
- line output stage
- short circuit of:
- flyback diode 6460
- EW transformer (bridge coil) 5465/5470 or 5463/5471 (version dependent)
- S-correction capacitor 2457
- EW power-transistor 7460 or driver-transistor 7461

Error 3 = Vertical / Frame protection

There are no pulses detected at pin 47 of the main microprocessor 7600 ( panel A7 ).

If this protection is active, the causes could be one of the following items;

- IC 7401 is faulty
- Open circuit of vertical deflection coil
- Vlotaux +11V not present and/or Vlotaux -11V not present
- Resistor 3409

Error 4 = Sound processor I2C error ( MSP3415D )

Sound processor does not respond to the micro controller

Error 5 = Bimos start-up error ( POR bit )

Bimos start-up register is corrupted or the I2C line to the Bimos is always low or no supply at pin 12 of the Bimos). This error is usually detected during start-up and hence will prevent the set from starting up.

Error 6 = Bimos (TDA8844) I2C error

Note that this error may also be reported as a result of error codes 4 (in that case the Bimos might not be the actual problem)

Error 7 = General I2C error. This will occur in the following cases:

- SCL or SDA is shorted to ground
- SCL is shorted to SDA
- SDA or SCL connection at the micro controller is open circuit.

Error 8 = Microprocessor internal RAM error

The micro controller internal RAM test indicated an error of the micro controller internal memory (tested during start-up);

Error 9 = EEPROM Configuration error ( Checksum error ); EEPROM is corrupted.

Error 10 = I2C error EEPROM error. NV memory (EEPROM) does not respond to the micro controller

Error 11 = I2C error PLL tuner. Tuner is corrupted or the I2C line to the Tuner is low or no supply voltage present at pin 9, pin 6 or pin 7 of the tuner.

Error 12 = Black current loop instability protection. The black current could not be stabilised. The possible cause could be a defect in one or more of the RGB amplifiers, RGB guns or RGB driving signals.

## 5.5 The "blinking LED" procedure

The contents of the error buffer can also be made visible via the "blinking LED" procedure. This is especially useful when there is no picture. There are two methods of access:

1. When the SDM is entered, the LED will blink the number of times, equal to the value of the last (newest) error code (repeatedly).
2. With the DST all error codes in the error buffer can be made visible. Transmit the command: "DIAGNOSE x OK" where x is the position in the error buffer to be made visible x ranges from 1, (the last (actual) error) to 6 (the first error). The LED will operate in the same way as in point 1, but now for the error code on position x.

Example:

Error code position1 2 3 4 5

Error buffer:8 9 5 0 0

- after entering SDM: blink (8x) - pause - blink (8x) - etc.
- after transmitting "DIAGNOSE- 2- OK" with the DST blink (9x) - pause - blink (9x) - etc.
- after transmitting "DIAGNOSE- 3- OK" with the DST blink(5x) - pause - blink(5x) - etc.
- after transmitting "DIAGNOSE- 4- OK" with the DST nothing happens

## 5.6 TROUBLE SHOOTING TIPS

In this paragraph some trouble shooting tips for the deflection and power supply circuitry are described. For detailed diagnostics, use the fault finding tree or use COMPAIR.

### 5.6.1 *THE DEFLECTION CIRCUIT:*

1. Check that the +VBATT ( 140V) is present across 2551 ( A1 POWER SUPPLY ). If the voltage is not present, disconnect coil 5551 ( A1 Power Supply) (Horizontal deflection stage is disconnected). If the voltage is present then the fault might be caused by the deflection circuit. Possible Candidates Are:
   - Transistor 7460 is faulty
   - The driver circuit around transistor 7461 is faulty
   - No horizontal drive signal coming from the BIMOS 7250-D pin 40 ( A4 - Synchronisation )

2. Note: If the Collector of 7460 is shorted to the Emitter, a tripping noise will be heard from the power supply circuit.
3. To determine whether the fault is present in the horizontal deflection circuit or in the E/W circuit ( A2 - Horizontal Deflection ), de-solder jumper 9465 and insert a jumper into position number 9461. This disables the E/W protection. If the basic deflection stage now works correctly ( parabolic picture) then the fault is present in the E/W circuit. If there is still no horizontal deflection, then the fault is present in the basic deflection circuitry.
4. The 25V-version ( 26" tube ) and the 27V-version (29" tube) do not have an E/W correction circuit.
5. Also don't forget the protection circuits in the line output stage. If any of these circuits are activated, the set will shut down. Depending on the protection, the led will blink according to the fault defined. In order to determine which protection circuit is active, isolation of each separate circuit is necessary. These protection circuits are:
   - High beam current protection ( LED blinks repetitively 2 times ) - CRT panel ( B )
   - E/W Horizontal protection ( LED blinks repetitively 2 times ) - Horizontal deflection ( A2 )
   - Vertical protection ( LED blinks repetitively 3 times ) - Vertical deflection ( A3 )

### 5.6.2 *THE POWER SUPPLY*

To trouble shoot the L9.1E SMPS, first check the Vaux voltage on C2561. If this voltage is not present, check fuse F1572 and D6560. If F1572 or D6560 is not open circuit, the problem might be caused on the primary side of the switching supply. Check the output of the bridge rectifier on the C2508 for approximately 300V DC. If this voltage is missing, check the bridge rectifier 6505 and the fuse 1500. If fuse F1500 is found to be open circuit, check MOSFET 7518 to make sure that there is no short circuit present and check R3518. If the 300V DC is present on C2508, check for a start-up voltage of approx. 13V on pin 1 of IC7520. If no start-up voltage is present, check if R3510 is open; zener 6510 is a short-circuit. It is necessary to have a feedback signal from the hot primary side of switch mode transformer T5545 at pin 8 and pin 9 for the power supply to oscillate. If this start-up voltage is present on pin 1 of IC7520 and the supply is not oscillating, check R3529 and D6540.

Check for a drive signal at the gate of MOSFET 7518, square wave signal - P2. Check pin 3 of IC7520, R3525 and D6514

To determined whether OVP is active, check whether Vaux is present at C2561.

## 5.7 Customer Service Mode (CSM)

All L9.1E sets are equipped with the "Customer Service Mode" (CSM). CSM is a special service mode that can be activated and deactivated by the customer, following a request from the service technician/dealer perhaps during a telephone conversation to identify the status of the set. This CSM is a 'read only' mode, therefore modifications or changes while the set is in this mode are not possible.

Entering the Customer Service Mode. The Customer Service Mode can be switched on by pressing simultaneously the button (MUTE) on the remote control and any key on the control buttons (P+, P-, VOL +, VOL -) on the TV for at least 4 seconds.

When the CSM is activated:

- picture and sound settings are set to nominal levels
- "Service unfriendly modes" are ignored

Exit the Customer Service Mode.

The Customer Service Mode will switch off after:

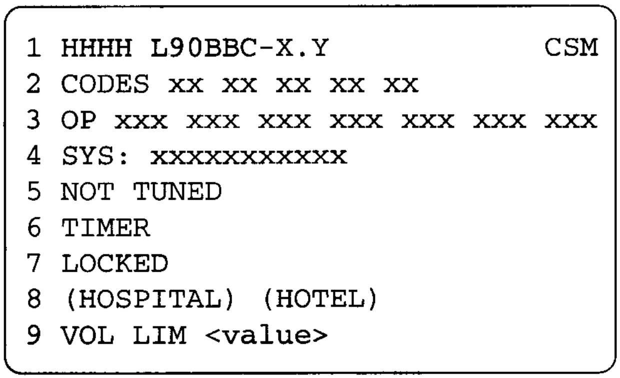
- pressing any key on the remote control handset (except "P+" or "P-")
- switching off the TV set with the mains switch.

All settings that were changed when CSM was activated are set back to the initial values

### 5.7.1 *The Customer Service Mode information screen*

The following information is displayed on screen:

- Line number for every line (to make CSM language independent)
- Operating hours
- Software version L90BBC X.Y)
- Text "CSM" on the first line
- Error buffer contents
- Option code information
- Configuration information
- Service unfriendly modes



```
1 HHHH L90BBC-X.Y              CSM
2 CODES xx xx xx xx xx
3 OP xxx xxx xxx xxx xxx xxx xxx
4 SYS: xxxxxxxxxxx
5 NOT TUNED
6 TIMER
7 LOCKED
8 (HOSPITAL) (HOTEL)
9 VOL LIM <value>
```

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**Figure 5-3 : Screen lay-out Customer Service Mode**

SYS: xxxxxx = xxxxxx is the SYSTEM THAT IS SET FOR THIS PRESET

NOT TUNED = no ident signal present

TIMER = (SLEEP) TIMER is activated

LOCKED = Channel/preset locked via parental lock, child lock

HOTEL = HOTEL mode activated; HOSPITAL = HOSPITAL mode activated

VOL LIM > = Volume limiter activated and set to >

### 5.7.2 *Exit*

Any key (RC or local keyboard) except "channel up" / "channel down" (standby switched to standby, mains OFF switches set off, other keys switch to normal operation)

## 5.8 Compair

### 5.8.1 *Introduction*

Compair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. Compair is a further development on the DST service remote control allowing faster and more accurate diagnostics. Compair has three big advantages:

- Compair helps you to quickly get an understanding how to repair the L9.1E in short time by guiding you step by step through the repair procedures.
- Compair allows very detailed diagnostics (on I2C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I2C commands yourself; Compair takes care of this.
- Compair speeds up the repair time since it can automatically communicate with the L9.1E (when the micro processor is working) and all repair information is directly available. When Compair is installed together with the SearchMan L9.1E electronic manual, schematics and PCBs are only a mouse-click away.

Compair consists of a Windows based fault finding program and an interface box between PC and the (defective) product. The Compair interface box is connected to the PC via a serial or RS232 cable. In case of the L9.1E chassis, the Compair interface box and the L9.1E communicate via an I2C cable (bi-directional) and via infra red communication (uni-directional; from Compair interface box to L9.1E)

The Compair fault finding program is able to determine the problem of the defective television. Compair can gather diagnostic information in 2 ways:

1. Communication to the television (automatic)
2. Asking questions to you (manually)

Compair combines this information with the repair information in its database to find out how to repair the L9.1E.

**Automatic information gathering**
Reading out the error buffer, Compair can automatically read out the contents of the entire error buffer.

Diagnosis on I2C level. Compair can access the I2C bus of the television. Compair can send and receive I2C commands to the micro controller of the television. In this way it is possible for Compair to communicate (read and write) to devices on the I2C busses of the L9.1E.

**Manual information gathering**
Automatic diagnosis is only possible if the micro controller of the television is working correctly and only to a certain extend. When this is not the case, Compair will guide you through the fault finding tree by asking you questions and showing you examples. You can answer by clicking on a link (e.g. text or an waveform pictures) that will bring you to the next step in the faultfinding process.

A question could be: Do you see snow? (Click on the correct answer)

YES / NO

An example can be: Measure testpoint I7 and click on the correct oscillogram you see on the oscilloscope

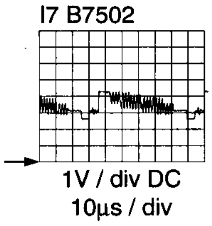


**Figure 5-4**

By a combination of automatic diagnostics and an interactive question/answer procedure, Compair will enable you to find most problems in a fast and effective way.

**Additional features**
Beside fault finding, Compair provides some additional features like:

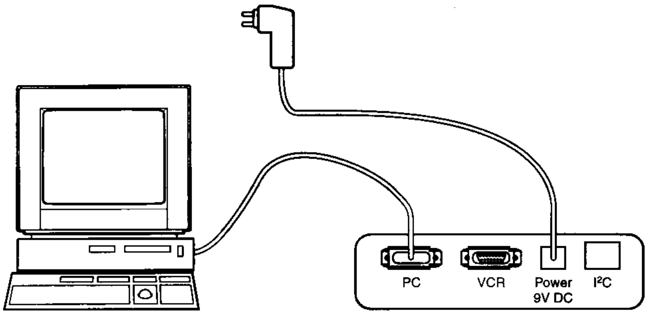
- Uploading/downloading of presets
- Managing of preset lists
- Emulation of the Dealer Service Tool

### 5.8.2 *Connecting the Compair interface*

The Compair Browser software should be installed and setup before connecting Compair to the L9.1E. (See the Compair Browser Quick Reference Card for installation instructions.)

1. Connect the RS232 interface cable to a free serial (COMM) port on the PC and the Compair interface PC connector (connector marked with "PC").
2. Place the Compair interface box straight in front of the television with the infrared window (marked "IR") directed to the television LED. The distance between Compair interface and television should be between 0.3 and 0.6 meter. (Note: make sure that (also) in the service position, the Compair interface infra red window is pointed to the standby LED of the television set (no objects should block the infra red beam)
3. Connect the mains adapter to the connector marked "POWER 9V DC" on the Compair interface
4. Switch the Compair interface OFF
5. Switch the television set OFF with the mains switch
6. Remove the rear cover of the television set
7. Connect the interface cable (4822 727 21641) to the connector on the rear side of the Compair interface that is marked "I2C" (See Figure 5.6)
8. Connect the other end of the interface cable to the Compair connector on the monocarrier (see figure 5.7)
9. Plug the mains adapter in the mains outlet and switch ON the interface. The green and red LEDs light up together. The red LED extinguishes after approx. 1 second (the green LED remains lit).
10. Start-up Compair and select "File" menu, "Open...:; select "L9.1E Fault finding" and click "OK"
11. Click on the icon (fig. 5.5) to switch ON the communication mode (the red LED on the Compair interface wil light up)
12. Switch on the television set with the mains switch
13. When the set is in standby. Click on "Start-up in Compair mode from standby" in the Compair L9.1E fault finding tree, otherwise continue.

Figure 5-5



86532027_003.EPS
050898

Figure 5-6

The set has now started up in Compair mode. Follow the instruction in the L9.1E fault finding tree to diagnose the set. Note that the OSD works but that the actual user control is disabled

### 5.8.3 *Preset installation*

Presets can be installed in 2 ways with the L9.1E.

- Via infra red
  - only sending TO the television
  - the rearcover does NOT have to be removed

Click on "File" "Open" and select "TV - use Compair as DST" to use infra red

- Via cable
  - sending TO the television and reading FROM the television
  - the rearcover has to be removed

Click on "File" "Open" and select "L9.1E fault finding" to use the cable

Presets can be installed via menu "Tools", "Installation", "Presets".

## 5.9 Ordering Compair

Compair order codes:

- Starterkit Compair+SearchMan software + Compair interface (excluding transformer): 4822 727 21629
- Compair interface (excluding transformer): 4822 727 21631
- Compair transformer (continental) Europe: 4822 727 21632
- Compair transformer United Kingdom: 4822 727 21633
- Starterkit Compair software: 4822 727 21634
- Starterkit SearchMan software: 4822 727 21635
- Starterkit Compair+SearchMan software: 4822 727 21636
- Compair CD (update): 4822 727 21637
- SearchMan CD (update): 4822 727 21638
- Compair interface cable (for L9.1E): 4822 727 21641

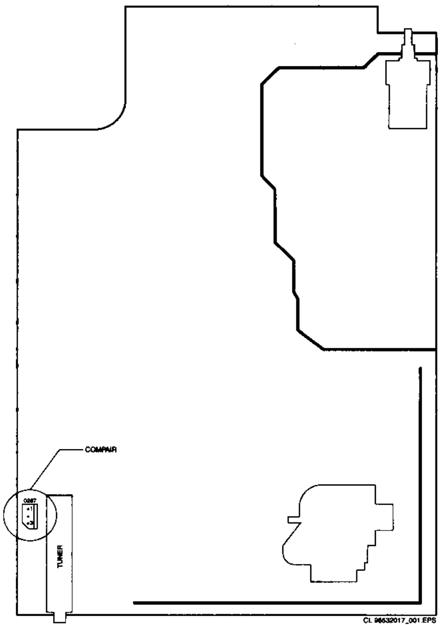


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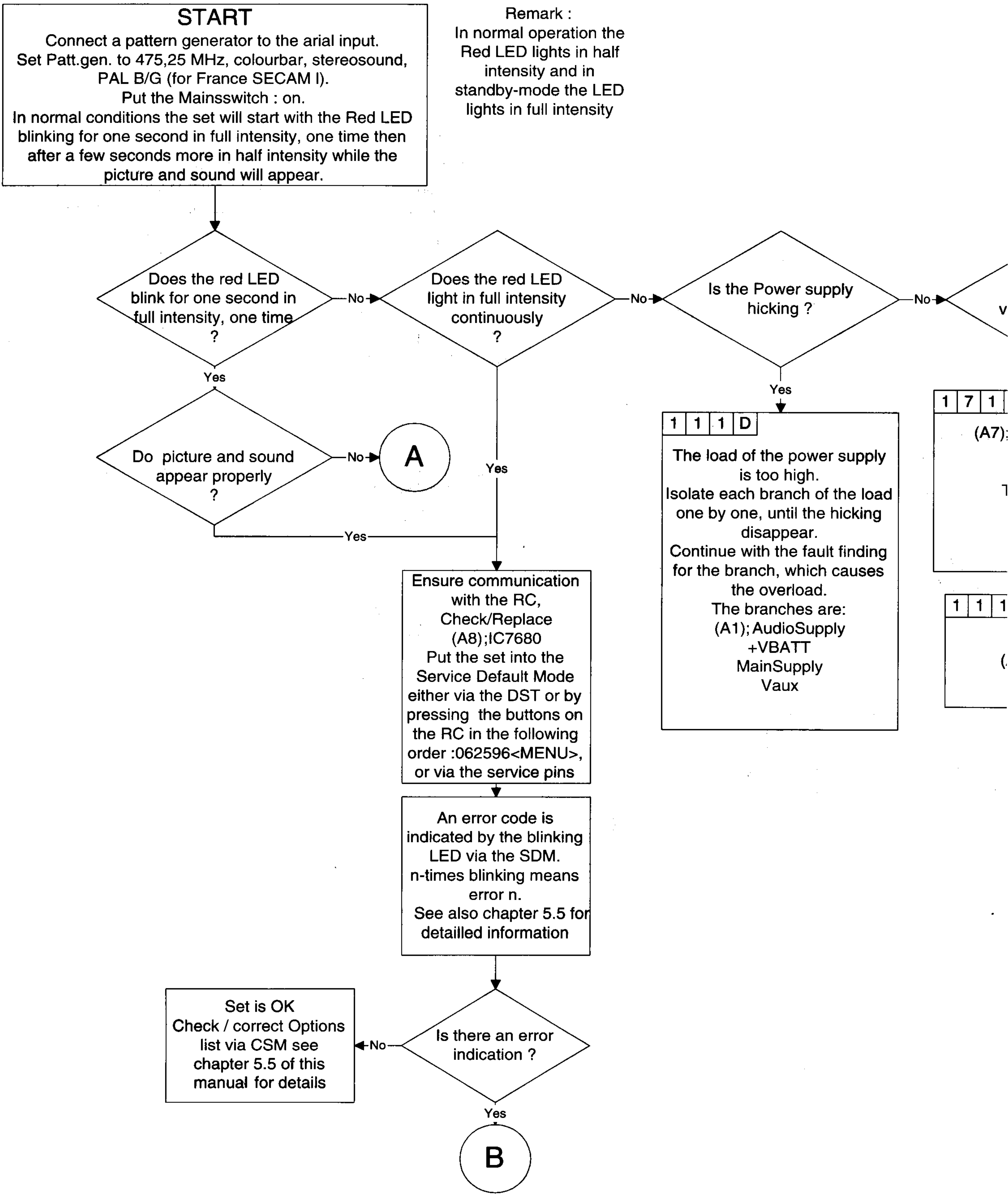
Figure 5-7



START

Connect a pattern generator to the arial input.
Set Patt.gen. to 475,25 MHz, colourbar, stereosound, PAL B/G (for France SECAM I).
Put the Mainsswitch : on.
In normal conditions the set will start with the Red LED blinking for one second in full intensity, one time then after a few seconds more in half intensity while the picture and sound will appear.

Remark :
In normal operation the Red LED lights in half intensity and in standby-mode the LED lights in full intensity

Does the red LED blink for one second in full intensity, one time ?

Does the red LED light in full intensity continuously ?

Is the Power supply hicking ?

Do picture and sound appear properly ?

1 1 1 D

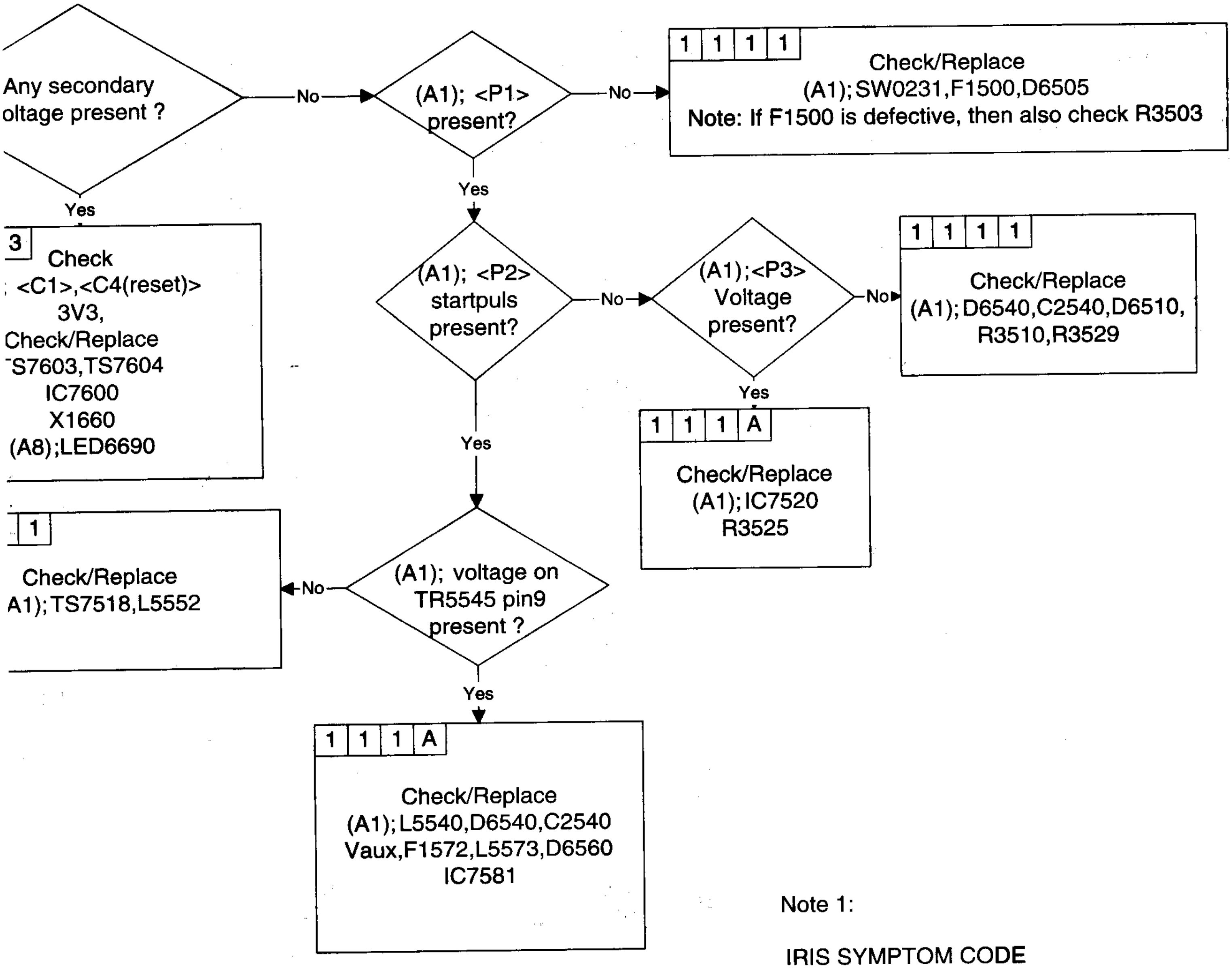
The load of the power supply is too high.
Isolate each branch of the load one by one, until the hicking disappear.
Continue with the fault finding for the branch, which causes the overload.
The branches are:
(A1); AudioSupply
+VBATT
MainSupply
Vaux

Ensure communication with the RC, Check/Replace (A8);IC7680
Put the set into the Service Default Mode either via the DST or by pressing the buttons on the RC in the following order :062596<MENU>, or via the service pins

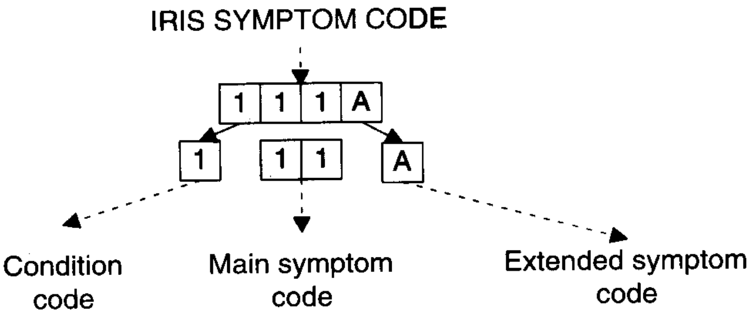
An error code is indicated by the blinking LED via the SDM.
n-times blinking means error n.
See also chapter 5.5 for detailled information

Is there an error indication ?

Set is OK
Check / correct Options list via CSM see chapter 5.5 of this manual for details


Any secondary
oltage present ?
No
(A1); <P1>
present?
No
1 1 1 1
Check/Replace
(A1);SW0231,F1500,D6505
Note: If F1500 is defective, then also check R3503
Yes
Yes
3
Check
; <C1>,<C4(reset)>
3V3,
Check/Replace
'S7603,TS7604
IC7600
X1660
(A8);LED6690
(A1); <P2>
startpuls
present?
No
(A1);<P3>
Voltage
present?
No
1 1 1 1
Check/Replace
(A1);D6540,C2540,D6510,
R3510,R3529
Yes
1 1 1 A
Check/Replace
(A1);IC7520
R3525
Yes
1
Check/Replace
A1);TS7518,L5552
No
(A1); voltage on
TR5545 pin9
present ?
Yes
1 1 1 A
Check/Replace
(A1);L5540,D6540,C2540
Vaux,F1572,L5573,D6560
IC7581

Note 1:


IRIS SYMPTOM CODE
1 1 1 A
1
1 1
A
Condition
code
Main symptom
code
Extended symptom
code

Note 2:

(A1) means Drawing A1
<P1> means Test point P1

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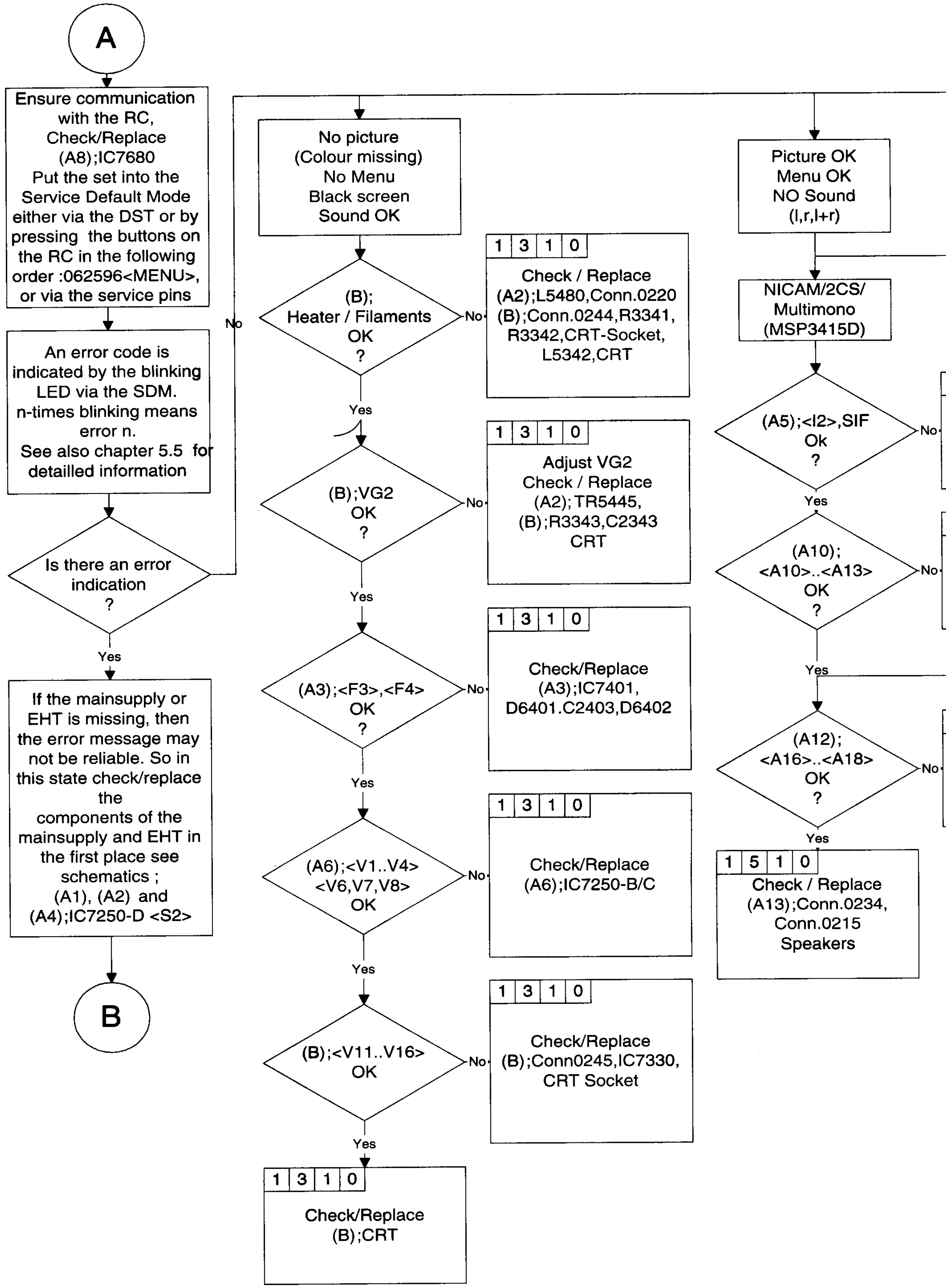
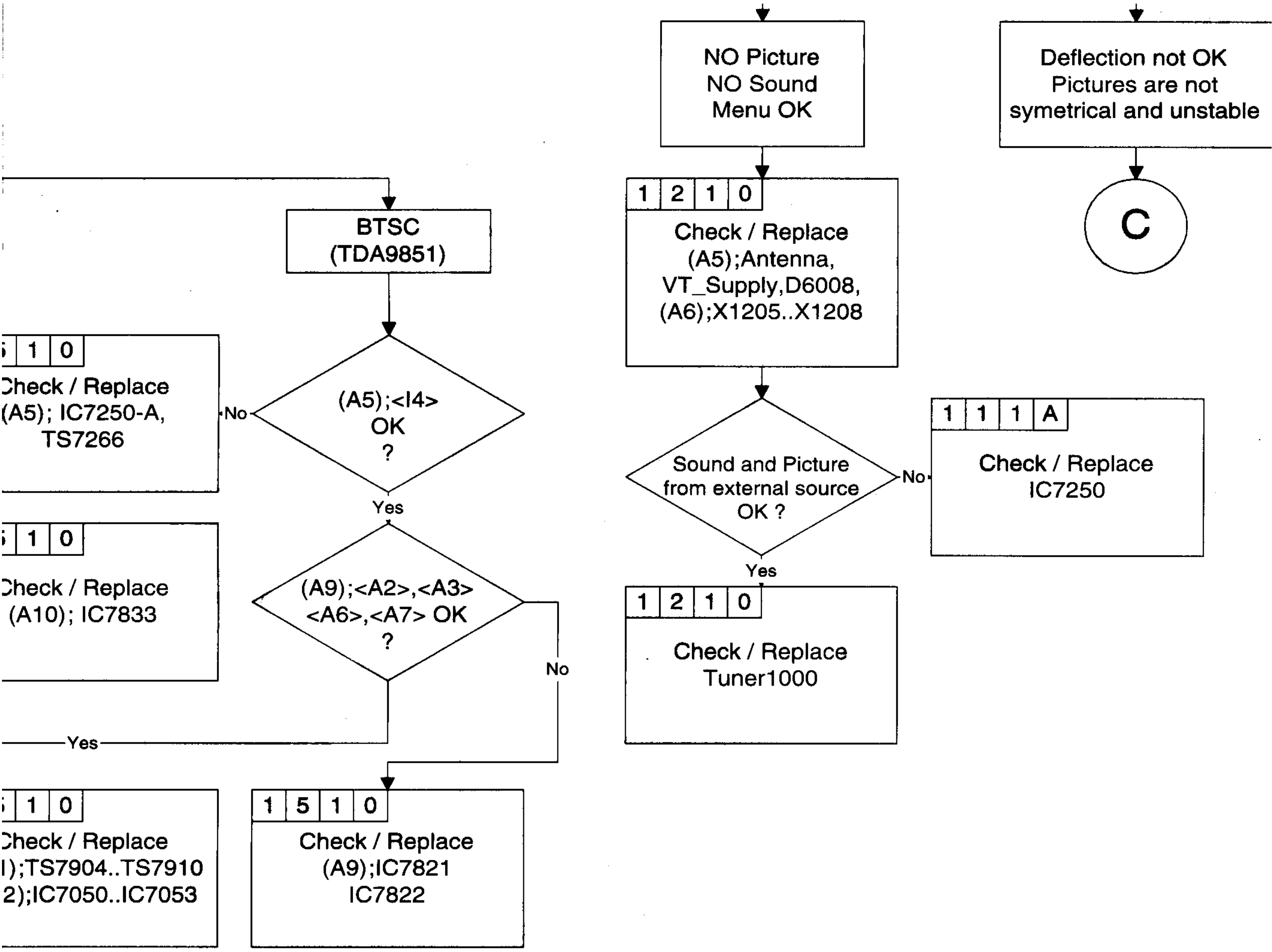

A
Ensure communication with the RC, Check/Replace (A8);IC7680 Put the set into the Service Default Mode either via the DST or by pressing the buttons on the RC in the following order :062596<MENU>, or via the service pins
An error code is indicated by the blinking LED via the SDM. n-times blinking means error n. See also chapter 5.5 for detailled information
Is there an error indication ?
No
Yes
If the mainsupply or EHT is missing, then the error message may not be reliable. So in this state check/replace the components of the mainsupply and EHT in the first place see schematics ; (A1), (A2) and (A4);IC7250-D <S2>
B
No picture (Colour missing) No Menu Black screen Sound OK
(B); Heater / Filaments OK ?
No
1 3 1 0
Check / Replace (A2);L5480,Conn.0220 (B);Conn.0244,R3341, R3342,CRT-Socket, L5342,CRT
Yes
(B);VG2 OK ?
No
1 3 1 0
Adjust VG2 Check / Replace (A2);TR5445, (B);R3343,C2343 CRT
Yes
(A3);<F3>,<F4> OK ?
No
1 3 1 0
Check/Replace (A3);IC7401, D6401.C2403,D6402
Yes
(A6);<V1..V4> <V6,V7,V8> OK
No
1 3 1 0
Check/Replace (A6);IC7250-B/C
Yes
(B);<V11..V16> OK
No
1 3 1 0
Check/Replace (B);Conn0245,IC7330, CRT Socket
Yes
1 3 1 0
Check/Replace (B);CRT
Picture OK Menu OK NO Sound (l,r,l+r)
NICAM/2CS/ Multimono (MSP3415D)
(A5);<I2>,SIF Ok ?
No
Yes
(A10); <A10>..<A13> OK ?
No
Yes
(A12); <A16>..<A18> OK ?
No
Yes
1 5 1 0
Check / Replace (A13);Conn.0234, Conn.0215 Speakers


NO Picture
NO Sound
Menu OK
Deflection not OK
Pictures are not
symetrical and unstable
C
BTSC
(TDA9851)
1 2 1 0
Check / Replace
(A5);Antenna,
VT_Supply,D6008,
(A6);X1205..X1208
1 0
Check / Replace
(A5); IC7250-A,
TS7266
No
(A5);<I4>
OK
?
Yes
1 1 1 A
Check / Replace
IC7250
Sound and Picture
from external source
OK ?
No
Yes
1 0
Check / Replace
(A10); IC7833
(A9);<A2>,<A3>
<A6>,<A7> OK
?
No
1 2 1 0
Check / Replace
Tuner1000
Yes
1 0
Check / Replace
1);TS7904..TS7910
2);IC7050..IC7053
1 5 1 0
Check / Replace
(A9);IC7821
IC7822

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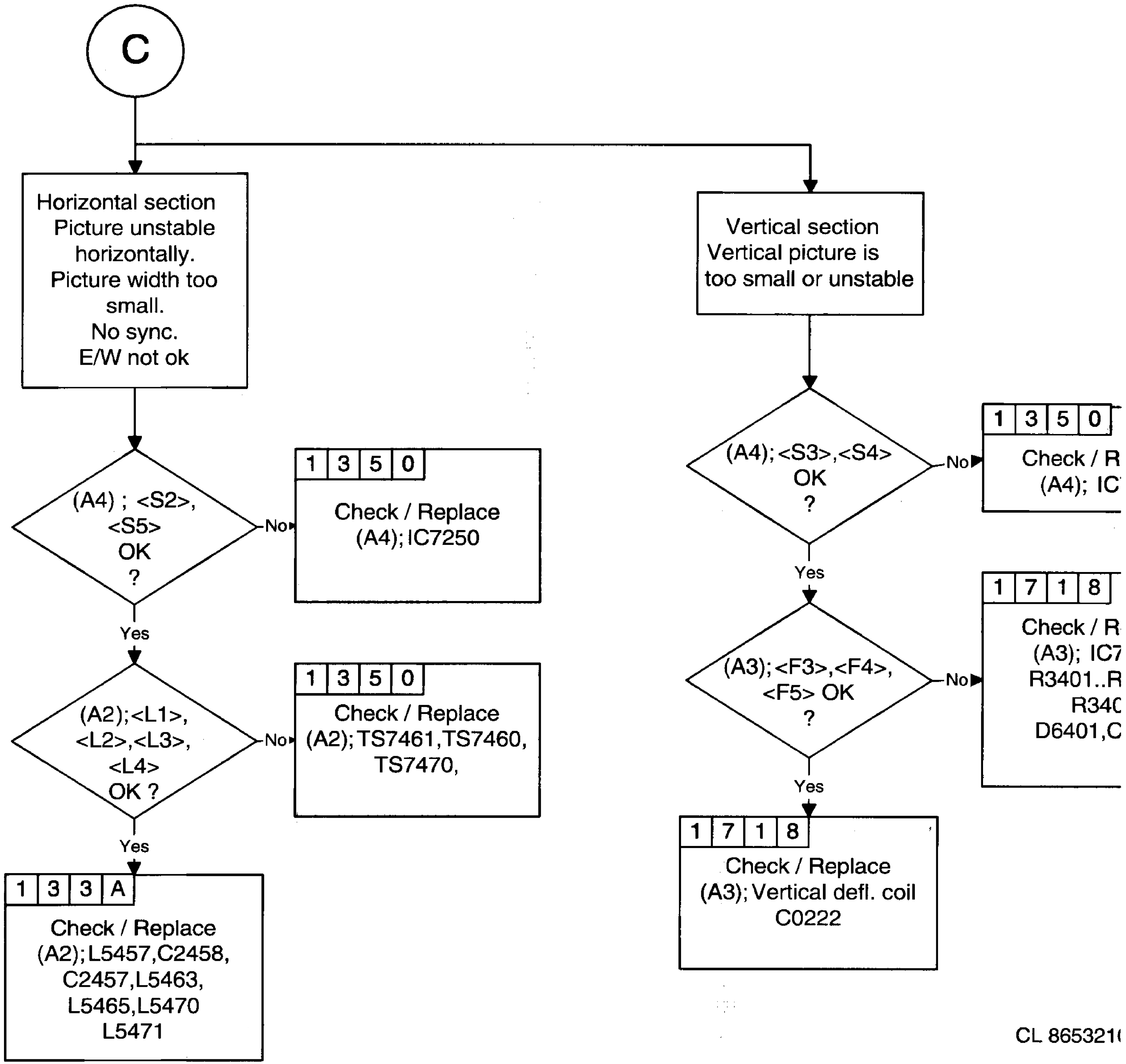
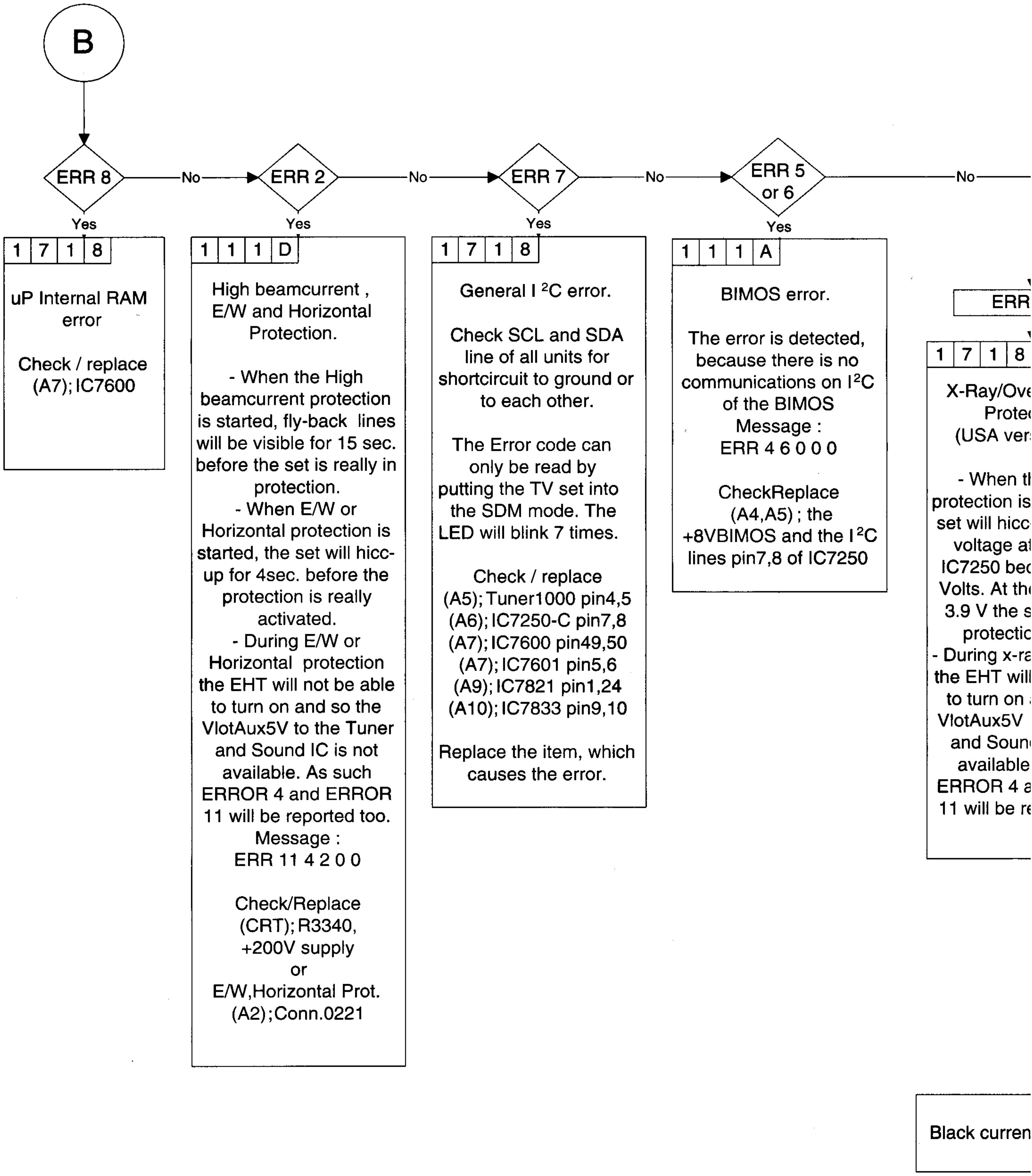

C
Horizontal section
Picture unstable horizontally.
Picture width too small.
No sync.
E/W not ok
(A4) ; <S2>, <S5> OK ?
No
1350
Check / Replace
(A4); IC7250
Yes
(A2);<L1>, <L2>,<L3>, <L4> OK ?
No
1350
Check / Replace
(A2); TS7461,TS7460, TS7470,
Yes
133A
Check / Replace
(A2); L5457,C2458, C2457,L5463, L5465,L5470 L5471
Vertical section
Vertical picture is too small or unstable
(A4); <S3>,<S4> OK ?
No
1350
Check / R
(A4); IC
Yes
(A3); <F3>,<F4>, <F5> OK ?
No
1718
Check / R
(A3); IC7
R3401..R
R340
D6401,C
Yes
1718
Check / Replace
(A3); Vertical defl. coil C0222

CL 865321

eplace
7250

eplace
'401 ,
3403,
)9
2403

)4_036.eps
190299



uP Internal RAM error

Check / replace (A7); IC7600

High beamcurrent , E/W and Horizontal Protection.

- When the High beamcurrent protection is started, fly-back lines will be visible for 15 sec. before the set is really in protection.
- When E/W or Horizontal protection is started, the set will hicc-up for 4sec. before the protection is really activated.
- During E/W or Horizontal protection the EHT will not be able to turn on and so the VlotAux5V to the Tuner and Sound IC is not available. As such ERROR 4 and ERROR 11 will be reported too.

Message :
ERR 11 4 2 0 0

Check/Replace
(CRT); R3340,
+200V supply
or
E/W,Horizontal Prot.
(A2);Conn.0221

General I $^2$C error.

Check SCL and SDA line of all units for shortcircuit to ground or to each other.

The Error code can only be read by putting the TV set into the SDM mode. The LED will blink 7 times.

Check / replace
(A5); Tuner1000 pin4,5
(A6); IC7250-C pin7,8
(A7); IC7600 pin49,50
(A7); IC7601 pin5,6
(A9); IC7821 pin1,24
(A10); IC7833 pin9,10

Replace the item, which causes the error.

BIMOS error.

The error is detected, because there is no communications on I$^2$C of the BIMOS

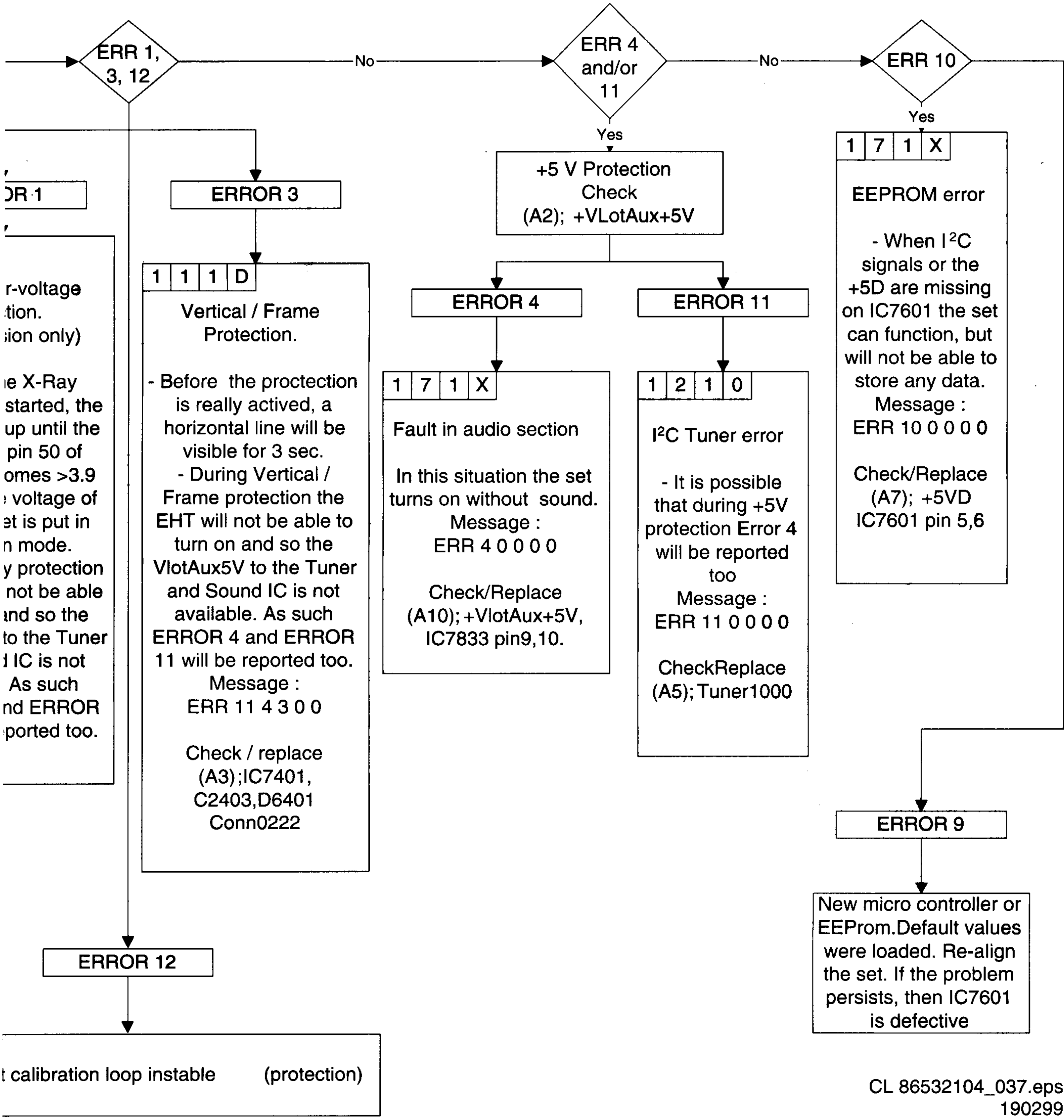
Message :
ERR 4 6 0 0 0

CheckReplace
(A4,A5) ; the +8VBIMOS and the I$^2$C lines pin7,8 of IC7250

X-Ray/Ove
Prote
(USA ver

- When t
protection is
set will hicc
voltage a
IC7250 be
Volts. At th
3.9 V the s
protectio
- During x-ra
the EHT will
to turn on
VlotAux5V
and Soun
available
ERROR 4 a
11 will be r

Black curren


ERR 1, 3, 12
No
ERR 4 and/or 11
Yes
No
ERR 10
Yes
)R 1
ERROR 3
1 1 1 D
+5 V Protection Check (A2); +VLotAux+5V
ERROR 4
ERROR 11
1 7 1 X
1 2 1 0
1 7 1 X
ERROR 9
ERROR 12

r-voltage
:tion.
;ion only)

ıe X-Ray
started, the
up until the
pin 50 of
omes >3.9
voltage of
et is put in
n mode.
y protection
not be able
ınd so the
to the Tuner
I IC is not
As such
nd ERROR
ported too.

Vertical / Frame Protection.

- Before the proctection is really actived, a horizontal line will be visible for 3 sec.
- During Vertical / Frame protection the EHT will not be able to turn on and so the VlotAux5V to the Tuner and Sound IC is not available. As such ERROR 4 and ERROR 11 will be reported too.

Message :
ERR 11 4 3 0 0

Check / replace
(A3);IC7401,
C2403,D6401
Conn0222

Fault in audio section

In this situation the set turns on without sound.
Message :
ERR 4 0 0 0 0

Check/Replace
(A10);+VlotAux+5V,
IC7833 pin9,10.

I²C Tuner error

- It is possible that during +5V protection Error 4 will be reported too
Message :
ERR 11 0 0 0 0

CheckReplace
(A5);Tuner1000

EEPROM error

- When I²C signals or the +5D are missing on IC7601 the set can function, but will not be able to store any data.
Message :
ERR 10 0 0 0 0

Check/Replace
(A7); +5VD
IC7601 pin 5,6

New micro controller or EEProm.Default values were loaded. Re-align the set. If the problem persists, then IC7601 is defective

t calibration loop instable (protection)

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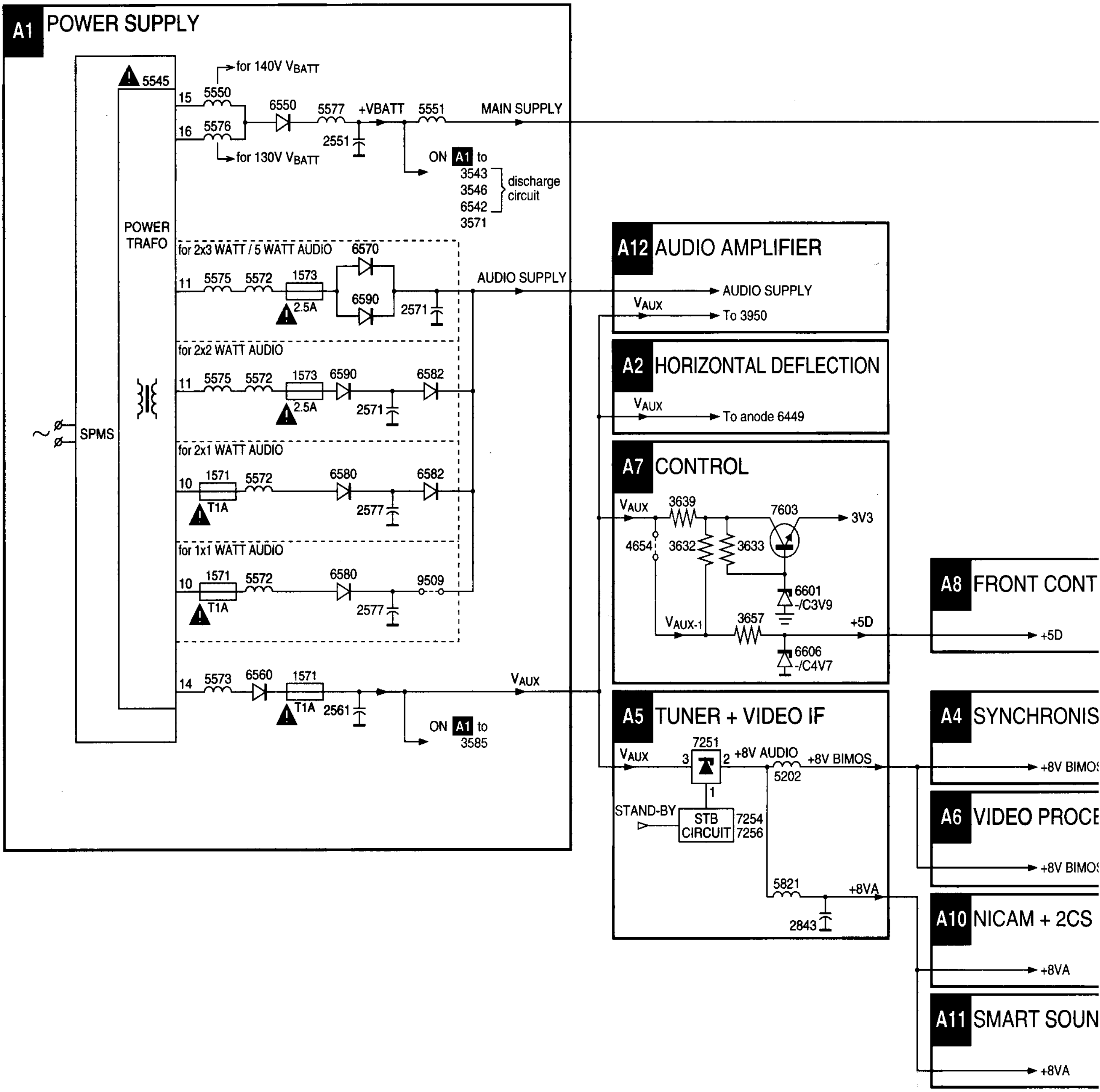
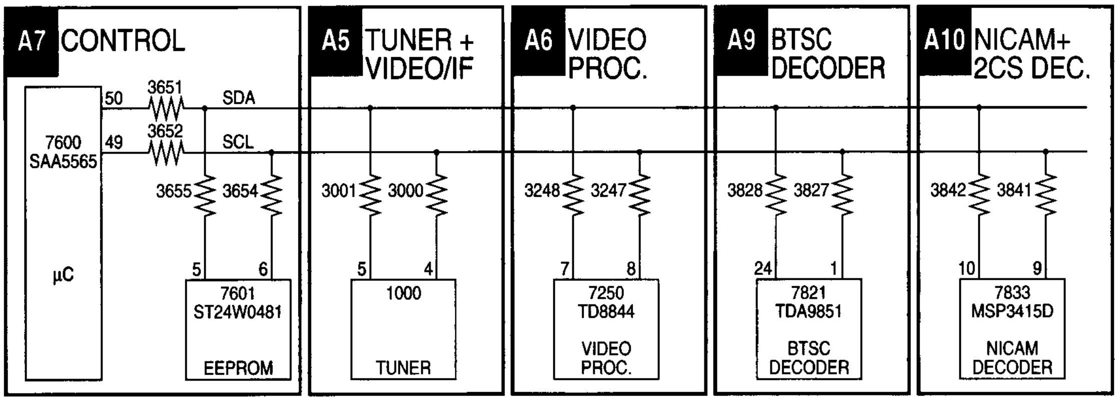
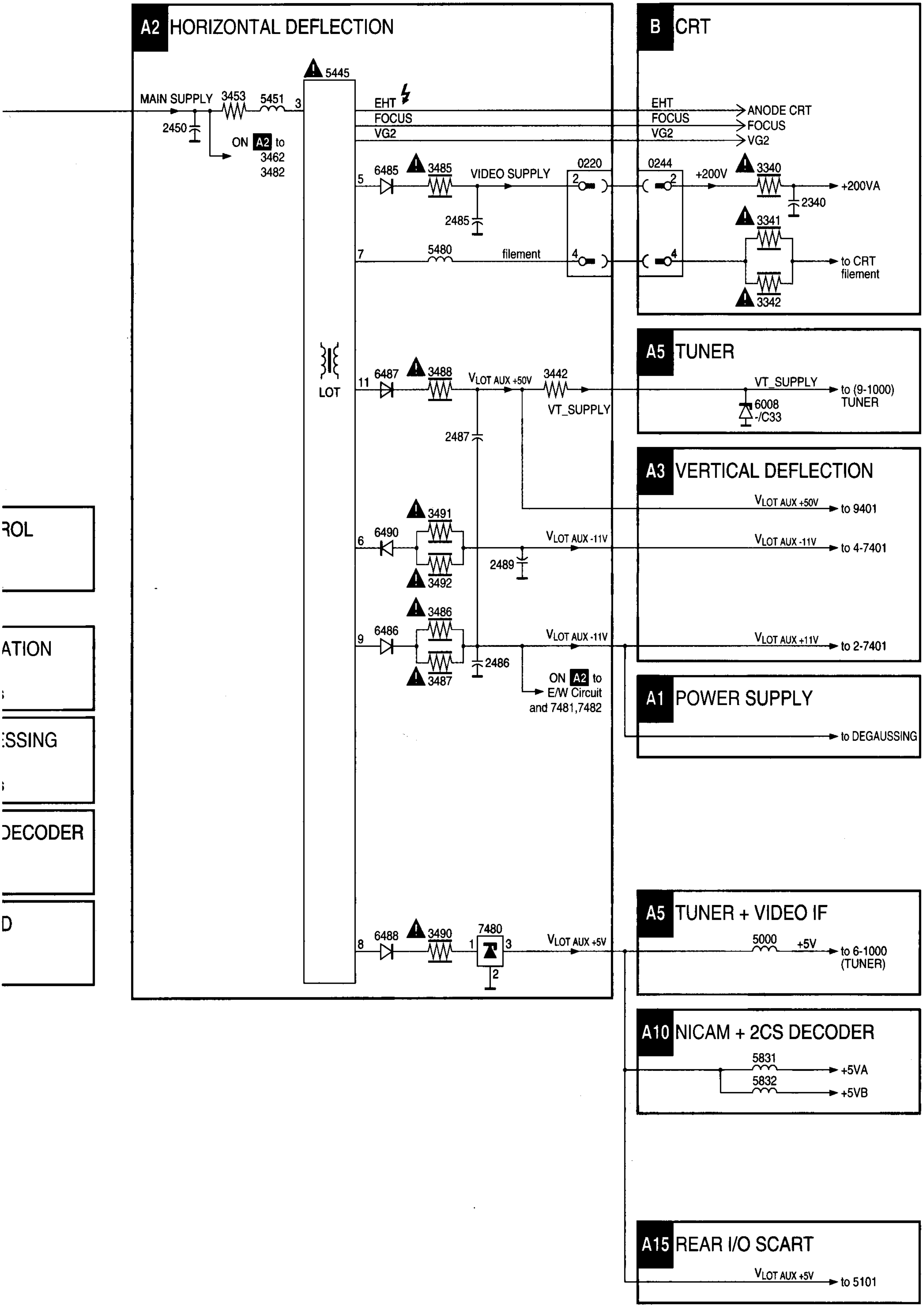

A1 POWER SUPPLY
5545
for 140V $V_{BATT}$
15 5550
16 5576
for 130V $V_{BATT}$
6550
5577 +VBATT 5551
MAIN SUPPLY
2551
ON A1 to 3543 3546 6542 3571 discharge circuit
POWER TRAFO
SPMS
for 2x3 WATT / 5 WATT AUDIO 6570
11 5575 5572 1573 2.5A 6590 2571
AUDIO SUPPLY
for 2x2 WATT AUDIO
11 5575 5572 1573 2.5A 6590 2571 6582
for 2x1 WATT AUDIO
10 1571 T1A 5572 6580 2577 6582
for 1x1 WATT AUDIO
10 1571 T1A 5572 6580 2577 9509
14 5573 6560 1571 T1A 2561
$V_{AUX}$
ON A1 to 3585
A12 AUDIO AMPLIFIER
AUDIO SUPPLY
$V_{AUX}$ To 3950
A2 HORIZONTAL DEFLECTION
$V_{AUX}$ To anode 6449
A7 CONTROL
$V_{AUX}$ 3639 7603 3V3
4654 3632 3633
6601 -/C3V9
$V_{AUX-1}$ 3657 +5D
6606 -/C4V7
A8 FRONT CONT
+5D
A5 TUNER + VIDEO IF
$V_{AUX}$ 7251 3 2 1 +8V AUDIO 5202 +8V BIMOS
STAND-BY STB CIRCUIT 7254 7256
5821 +8VA 2843
A4 SYNCHRONIS
+8V BIMOS
A6 VIDEO PROCE
+8V BIMOS
A10 NICAM + 2CS
+8VA
A11 SMART SOUN
+8VA

## IIC BUS INTERCONNECTION DIAGRAM


A7 CONTROL
7600 SAA5565 µC
50 3651 SDA
49 3652 SCL
3655 3654
5 6
7601 ST24W0481 EEPROM
A5 TUNER + VIDEO/IF
3001 3000
5 4
1000 TUNER
A6 VIDEO PROC.
3248 3247
7 8
7250 TD8844 VIDEO PROC.
A9 BTSC DECODER
3828 3827
24 1
7821 TDA9851 BTSC DECODER
A10 NICAM+ 2CS DEC.
3842 3841
10 9
7833 MSP3415D NICAM DECODER


A2 HORIZONTAL DEFLECTION
MAIN SUPPLY
3453
5451
2450
ON A2 to
3462
3482
5445
3
EHT
FOCUS
VG2
5
6485
3485
VIDEO SUPPLY
2485
0220
7
5480
filement
LOT
11
6487
3488
VLOT AUX +50V
3442
VT_SUPPLY
2487
6
6490
3491
3492
VLOT AUX -11V
2489
9
6486
3486
3487
2486
VLOT AUX -11V
ON A2 to
E/W Circuit
and 7481,7482
8
6488
3490
7480
1
2
3
VLOT AUX +5V
B CRT
EHT
FOCUS
VG2
ANODE CRT
FOCUS
VG2
0244
+200V
3340
2340
+200VA
3341
3342
to CRT
filement
A5 TUNER
VT_SUPPLY
6008
-/C33
to (9-1000)
TUNER
A3 VERTICAL DEFLECTION
VLOT AUX +50V
to 9401
VLOT AUX -11V
to 4-7401
VLOT AUX +11V
to 2-7401
A1 POWER SUPPLY
to DEGAUSSING
A5 TUNER + VIDEO IF
5000
+5V
to 6-1000
(TUNER)
A10 NICAM + 2CS DECODER
5831
+5VA
5832
+5VB
A15 REAR I/O SCART
VLOT AUX +5V
to 5101
ROL
ATION
ESSING
DECODER
D

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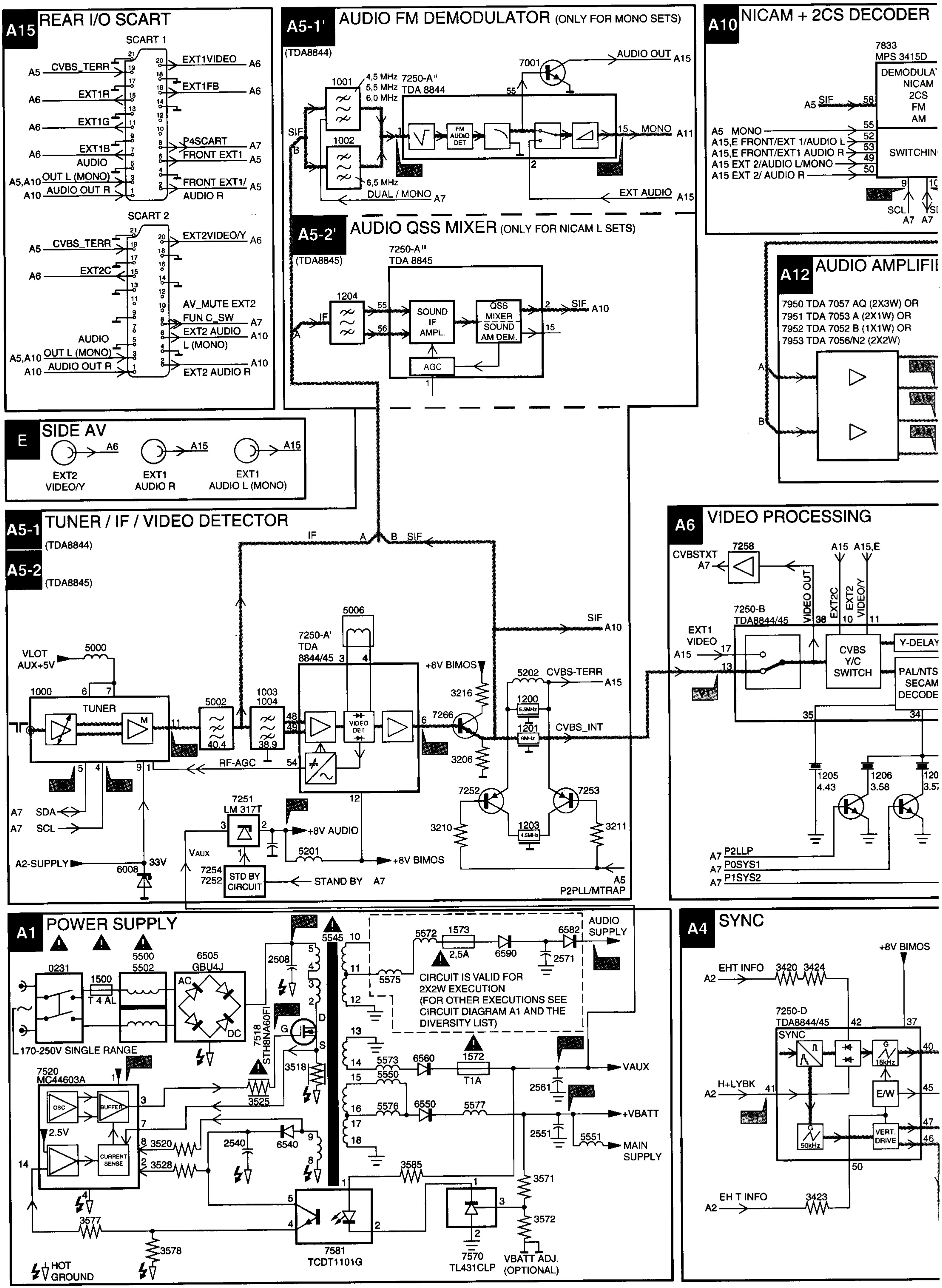
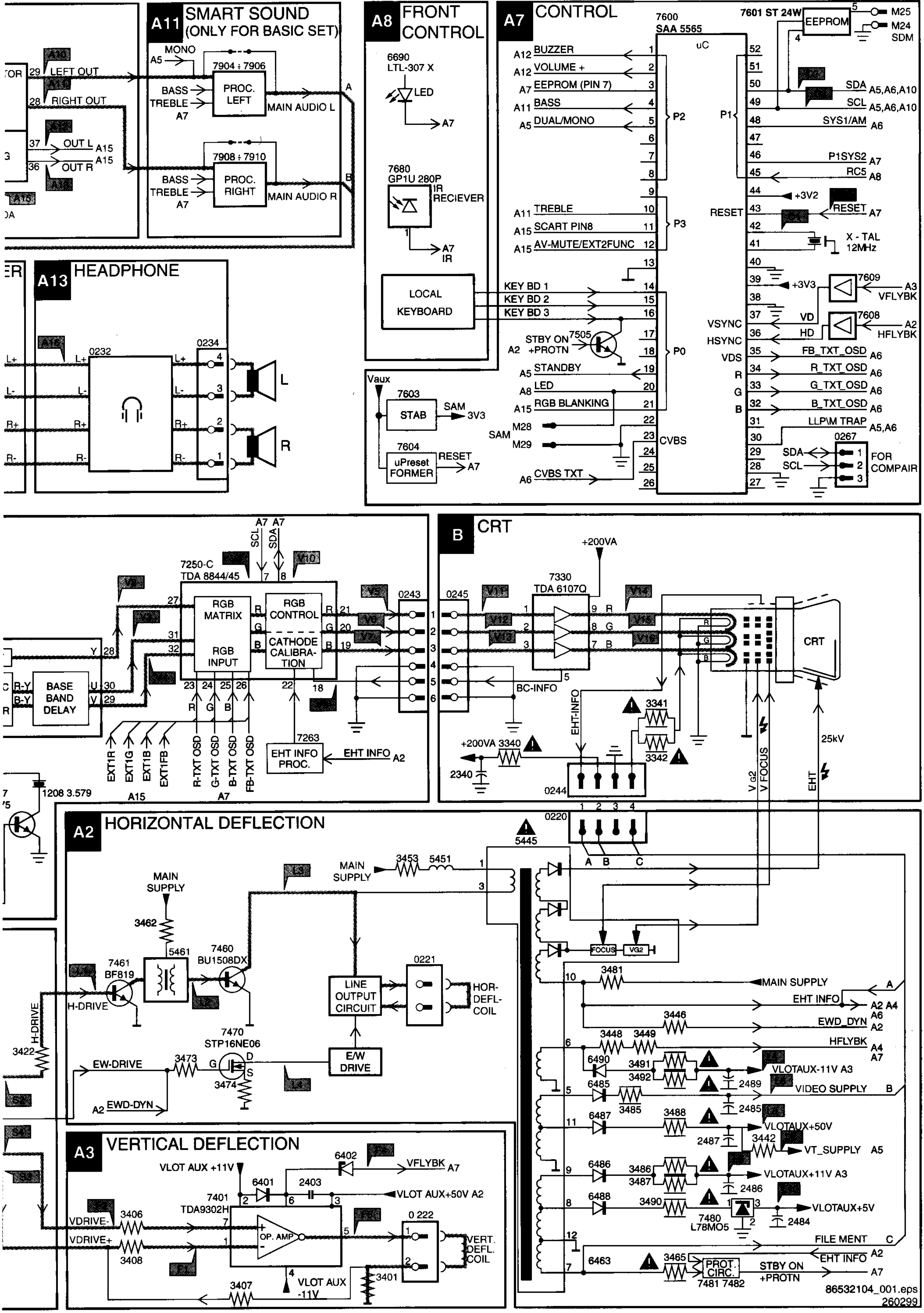
260299


A15 REAR I/O SCART
SCART 1
A5 CVBS_TERR
EXT1VIDEO A6
EXT1FB A6
A6 EXT1R
A6 EXT1G
A6 EXT1B
P4SCART A7
AUDIO
FRONT EXT1 A5
A5,A10 OUT L (MONO)
A10 AUDIO OUT R
FRONT EXT1/ AUDIO R A5
SCART 2
A5 CVBS_TERR
EXT2VIDEO/Y A6
A6 EXT2C
AV_MUTE EXT2
FUN C_SW A7
EXT2 AUDIO L (MONO) A10
AUDIO
A5,A10 OUT L (MONO)
A10 AUDIO OUT R
EXT2 AUDIO R A10
A5-1' AUDIO FM DEMODULATOR (ONLY FOR MONO SETS)
(TDA8844)
1001
4,5 MHz
5,5 MHz
6,0 MHz
7250-A''
TDA 8844
7001
AUDIO OUT A15
SIF
1002
6,5 MHz
DUAL / MONO A7
FM AUDIO DET
MONO A11
EXT AUDIO A15
A5-2' AUDIO QSS MIXER (ONLY FOR NICAM L SETS)
(TDA8845)
7250-A'''
TDA 8845
1204
IF
SOUND IF AMPL.
QSS MIXER
SOUND AM DEM.
AGC
SIF A10
A10 NICAM + 2CS DECODER
7833
MPS 3415D
DEMODULA
NICAM
2CS
FM
AM
A5 SIF
A5 MONO
A15,E FRONT/EXT 1/AUDIO L
A15,E FRONT/EXT1 AUDIO R
A15 EXT 2/AUDIO L/MONO
A15 EXT 2/ AUDIO R
SWITCHIN
SCL
A7
A12 AUDIO AMPLIFI
7950 TDA 7057 AQ (2X3W) OR
7951 TDA 7053 A (2X1W) OR
7952 TDA 7052 B (1X1W) OR
7953 TDA 7056/N2 (2X2W)
A
B
E SIDE AV
A6
A15
A15
EXT2 VIDEO/Y
EXT1 AUDIO R
EXT1 AUDIO L (MONO)
A5-1 TUNER / IF / VIDEO DETECTOR
(TDA8844)
A5-2
(TDA8845)
IF
A
B
SIF
5006
7250-A'
TDA 8844/45
SIF A10
VLOT AUX+5V
5000
1000
TUNER
5002
40.4
1003
1004
38.9
+8V BIMOS
3216
5202 CVBS-TERR A15
1200
7266
1201
CVBS_INT
VIDEO DET
RF-AGC
3206
A7 SDA
A7 SCL
7251
LM 317T
+8V AUDIO
7252
7253
3210
1203
3211
A2-SUPPLY
33V
6008
VAUX
5201
+8V BIMOS
7254
7252
STD BY CIRCUIT
STAND BY A7
A5
P2PLL/MTRAP
A6 VIDEO PROCESSING
CVBSTXT A7
7258
A15 A15,E
VIDEO OUT
EXT2C
EXT2 VIDEO/Y
7250-B
TDA8844/45
EXT1 VIDEO A15
CVBS Y/C SWITCH
Y-DELAY
PAL/NTS SECAM DECODE
1205 4.43
1206 3.58
120 3.5
A7 P2LLP
A7 P0SYS1
A7 P1SYS2
A1 POWER SUPPLY
0231
1500
T 4 AL
5500
5502
6505
GBU4J
AC
DC
170-250V SINGLE RANGE
5545
2508
7518
STH8NA60FI
G
D
S
3518
7520
MC44603A
OSC
BUFFER
2.5V
CURRENT SENSE
3525
3520
3528
2540
6540
3577
3578
HOT GROUND
5572
1573
2,5A
6590
6582
2571
AUDIO SUPPLY
5575
CIRCUIT IS VALID FOR 2X2W EXECUTION (FOR OTHER EXECUTIONS SEE CIRCUIT DIAGRAM A1 AND THE DIVERSITY LIST)
5573
5550
6560
1572
T1A
VAUX
2561
5576
6550
5577
+VBATT
2551
5551
MAIN SUPPLY
3585
3571
3572
7581
TCDT1101G
7570
TL431CLP
VBATT ADJ. (OPTIONAL)
A4 SYNC
+8V BIMOS
A2 EHT INFO
3420
3424
7250-D
TDA8844/45
SYNC
16kHz
A2 H+LYBK
E/W
50kHz
VERT. DRIVE
A2 EH T INFO
3423


A11 SMART SOUND (ONLY FOR BASIC SET)
MONO
A5
7904 ÷ 7906
29 LEFT OUT
28 RIGHT OUT
BASS
TREBLE
A7
PROC. LEFT
MAIN AUDIO L
7908 ÷ 7910
PROC. RIGHT
MAIN AUDIO R
37 OUT L A15
36 OUT R A15
A
B
A13 HEADPHONE
0232
0234
L+
L-
R+
R-
L
R
A8 FRONT CONTROL
6690 LTL-307 X
LED
A7
7680 GP1U 280P
IR RECIEVER
A7 IR
LOCAL KEYBOARD
Vaux
7603 STAB
SAM 3V3
7604 uPreset FORMER
RESET A7
A7 CONTROL
7600 SAA 5565
uC
7601 ST 24W
EEPROM
M25
M24 SDM
A12 BUZZER
A12 VOLUME +
A7 EEPROM (PIN 7)
A11 BASS
A5 DUAL/MONO
P2
A11 TREBLE
A15 SCART PIN8
A15 AV-MUTE/EXT2FUNC
P3
KEY BD 1
KEY BD 2
KEY BD 3
STBY ON 7505
A2 +PROTN
A5 STANDBY
A8 LED
A15 RGB BLANKING
SAM M28
M29
P0
CVBS
A6 CVBS TXT
P1
SDA A5,A6,A10
SCL A5,A6,A10
SYS1/AM A6
P1SYS2 A7
RC5 A8
+3V2
RESET
RESET A7
X - TAL 12MHz
+3V3
7609 A3 VFLYBK
VSYNC VD
7608 A2 HFLYBK
HSYNC HD
VDS FB_TXT_OSD A6
R R_TXT_OSD A6
G G_TXT_OSD A6
B B_TXT_OSD A6
LLP\M TRAP A5,A6
0267
SDA
SCL
FOR COMPAIR
A7 A7
SCL SDA
7250-C TDA 8844/45
RGB MATRIX
RGB INPUT
RGB CONTROL
CATHODE CALIBRA-TION
0243
0245
Y 28
R-Y U 30
B-Y V 29
BASE BAND DELAY
EXT1R EXT1G EXT1B EXT1FB
A15
R-TXT OSD G-TXT OSD B-TXT OSD FB-TXT OSD
A7
7263 EHT INFO PROC.
EHT INFO A2
1208 3.579
B CRT
+200VA
7330 TDA 6107Q
BC-INFO
EHT-INFO
3341
3342
+200VA 3340
2340
0244
CRT
V G2
V FOCUS
EHT
25kV
A2 HORIZONTAL DEFLECTION
MAIN SUPPLY
3462
7461 BF819
H-DRIVE
5461
7460 BU1508DX
3422
7470 STP16NE06
EW-DRIVE
3473
3474
A2 EWD-DYN
LINE OUTPUT CIRCUIT
0221
HOR-DEFL-COIL
E/W DRIVE
3453 5451
0220
5445
A B C
FOCUS
VG2
3481 MAIN SUPPLY
EHT INFO A2 A4
3446 EWD_DYN A6 A2
3448 3449 HFLYBK A4 A7
6490
3491
3492
VLOTAUX-11V A3
6485
3485
2489
VIDEO SUPPLY B
6487
3488
2485
VLOTAUX+50V
2487
3442
VT_SUPPLY A5
6486
3486
3487
VLOTAUX+11V A3
2486
6488
3490
7480 L78MO5
VLOTAUX+5V
2484
FILE MENT C
EHT INFO A2
6463
3465
PROT. CIRC. 7481 7482
STBY ON +PROTN A7
A3 VERTICAL DEFLECTION
VLOT AUX +11V
6401
6402
VFLYBK A7
2403
VLOT AUX+50V A2
7401 TDA9302H
VDRIVE-
VDRIVE+
3406
3408
OP. AMP
0 222
VERT. DEFL. COIL
3407
VLOT AUX -11V
3401

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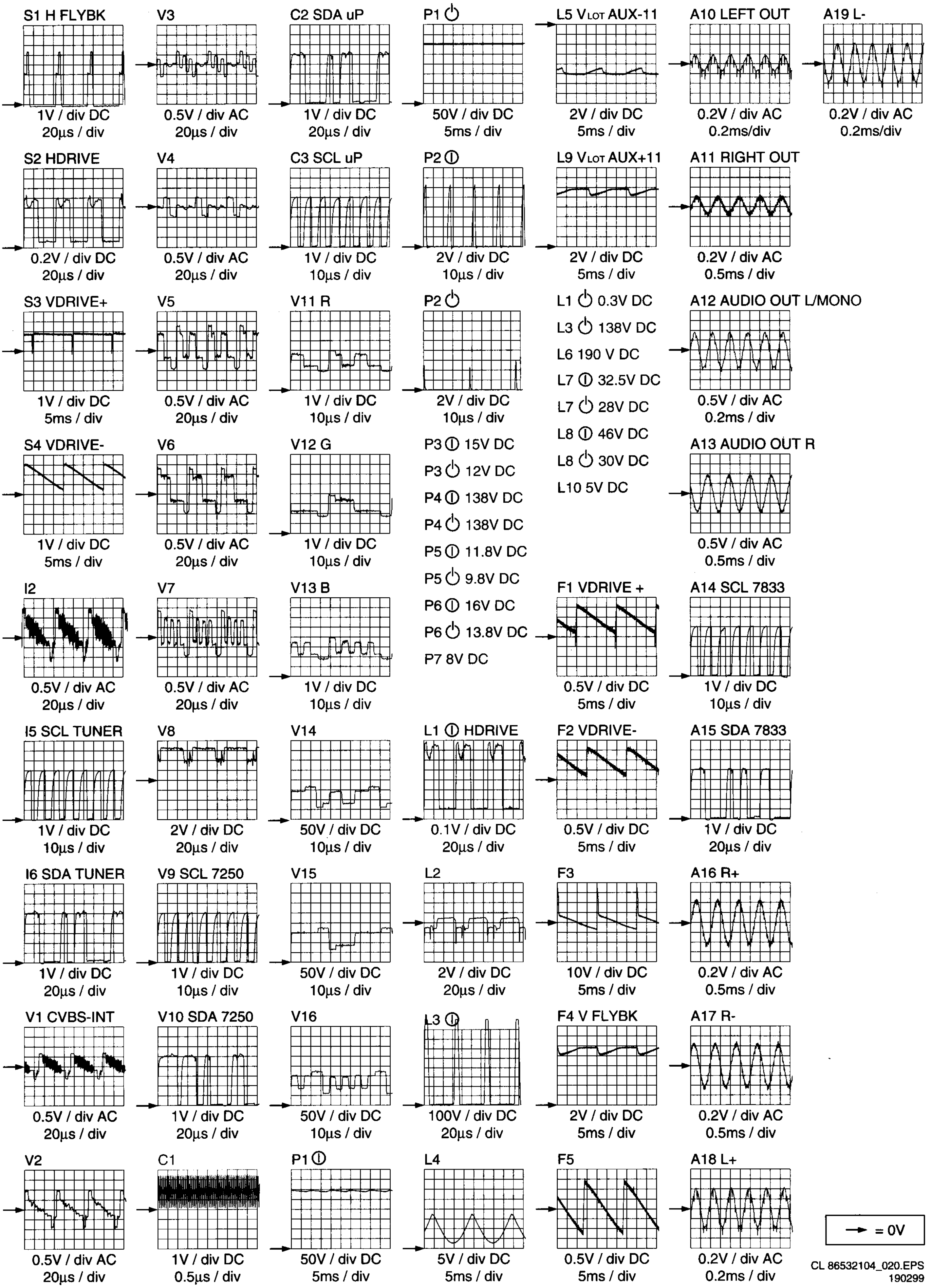
260299

# 6 Fault finding trees, diagrams and overviews



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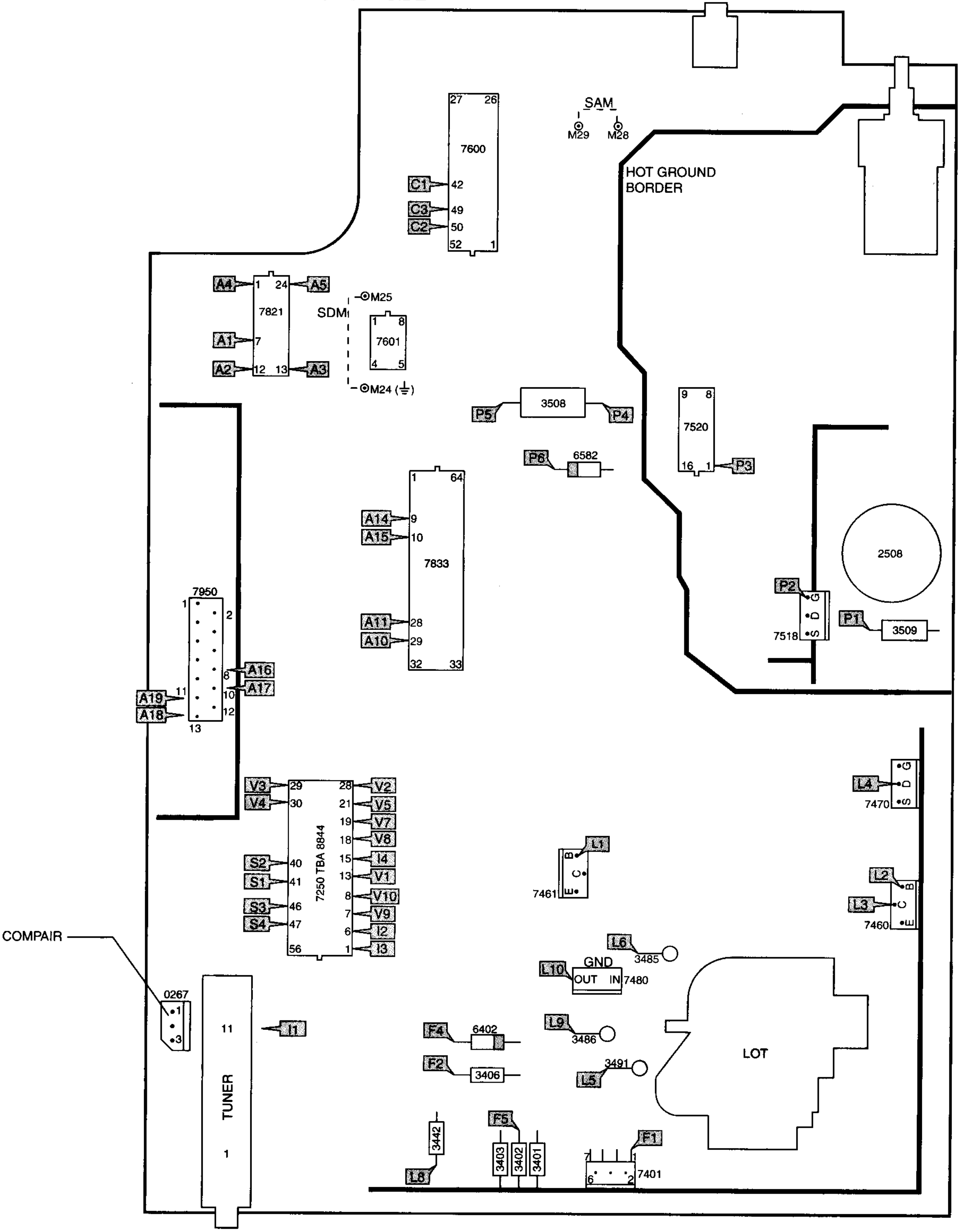
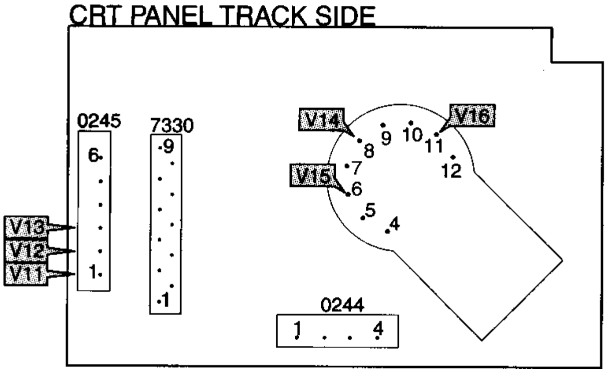
190299

## MAIN PANEL COMPONENT SIDE


SAM
M29
M28
7600
27
26
C1
42
C3
49
C2
50
52
1
HOT GROUND BORDER
A4
1
24
A5
7821
A1
7
A2
12
13
A3
M25
SDM
7601
1
8
4
5
M24 (⏚)
P5
3508
P4
9
8
7520
16
1
P3
P6
6582
1
64
A14
9
A15
10
7833
A11
28
A10
29
32
33
2508
P2
G
D
S
7518
P1
3509
7950
1
2
8
A16
10
A17
11
A19
A18
12
13
V3
29
28
V2
V4
30
21
V5
19
V7
18
V8
S2
40
15
I4
S1
41
13
V1
7250 TBA 8844
8
V10
S3
46
7
V9
S4
47
6
I2
56
1
I3
L4
7470
L1
B
C
E
7461
L2
L3
7460
L6
3485
GND
L10
OUT
IN
7480
COMPAIR
0267
1
3
11
I1
TUNER
1
F4
6402
L9
3486
F2
3406
3491
L5
LOT
F5
F1
3442
3403
3402
3401
7
1
6
2
7401
L8

## CRT PANEL TRACK SIDE


0245
6
1
7330
9
1
V13
V12
V11
V14
V16
9
10
11
8
7
12
V15
6
5
4
0244
1
4

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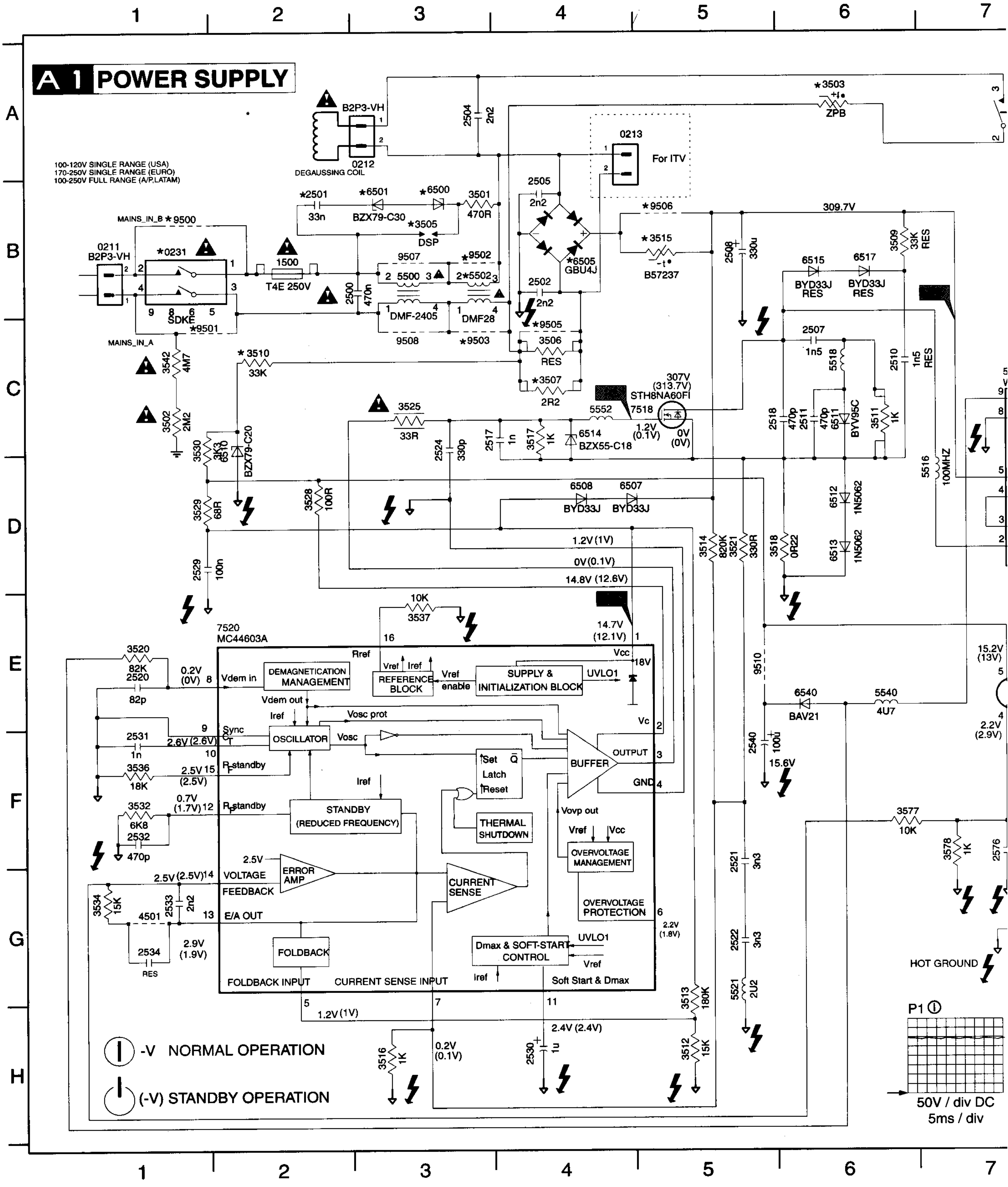
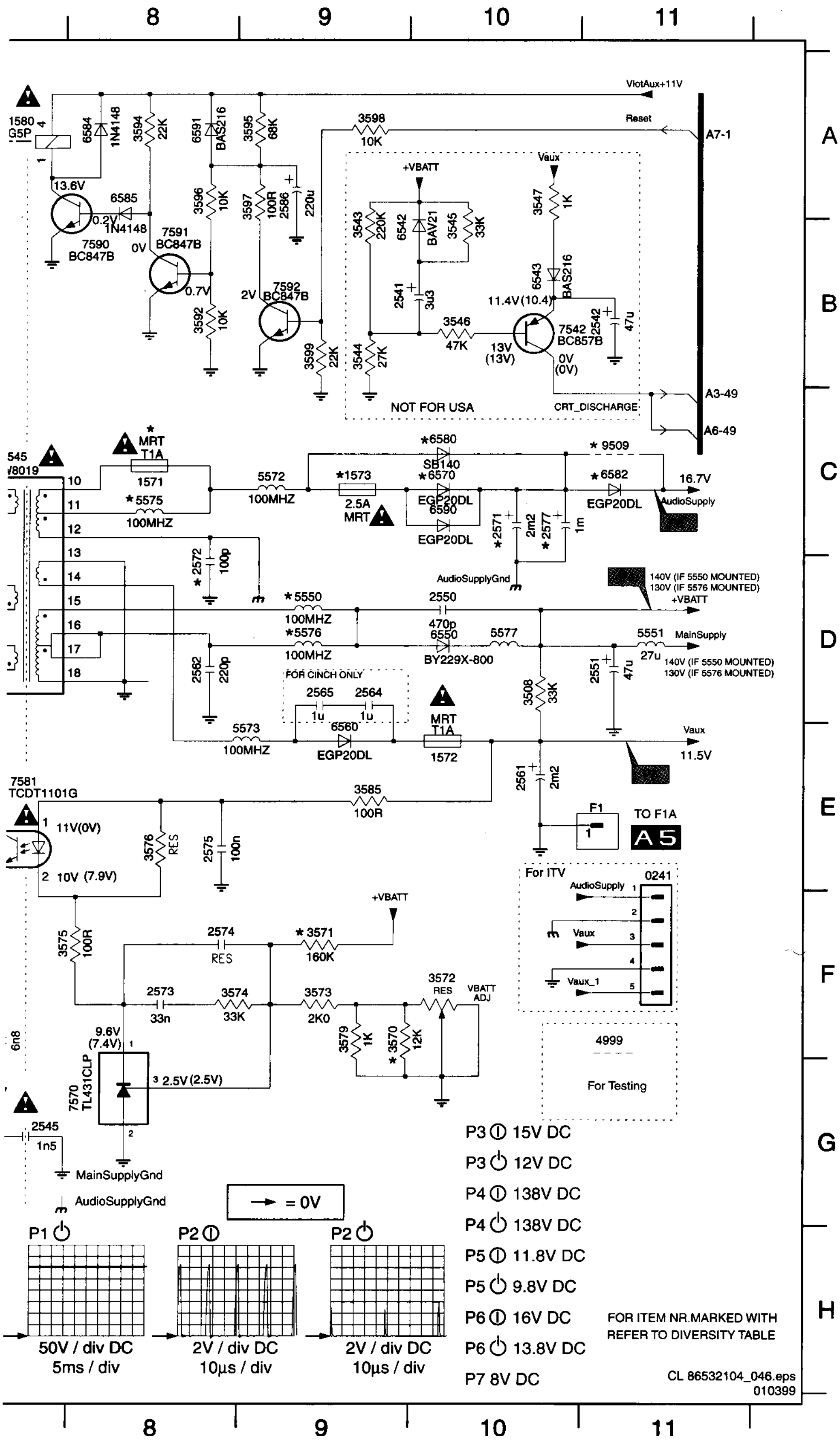

A 1 POWER SUPPLY
100-120V SINGLE RANGE (USA)
170-250V SINGLE RANGE (EURO)
100-250V FULL RANGE (A/P,LATAM)
B2P3-VH
0212
DEGAUSSING COIL
2504 2n2
0213
For ITV
*3503
ZPB
MAINS_IN_B *9500
0211
B2P3-VH
*0231
SDKE
*9501
MAINS_IN_A
*2501 33n
*6501 BZX79-C30
*6500
*3505 DSP
3501 470R
1500
T4E 250V
2500 470n
9507
2 5500 3
*9502
2*5502 3
DMF-2405
DMF28
9508
*9503
2505 2n2
*6505 GBU4J
2502 2n2
*9505
3506 RES
*3507 2R2
*9506
*3515
B57237
2508 330u
309.7V
3509 33K RES
6515 BYD33J RES
6517 BYD33J RES
2507 1n5
5518
2510 1n5 RES
*3510 33K
3542 4M7
3502 2M2
3525 33R
2524 330p
2517 1n
3517 1K
6514 BZX55-C18
5552
307V (313.7V)
STH8NA60FI
7518
1.2V (0.1V)
0V (0V)
2518 470p
2511 470p
6511 BYV95C
3511 1K
5516 100MHZ
3530 3K3
6510 BZX79-C20
3529 68R
3528 100R
6508 BYD33J
6507 BYD33J
6512 1N5062
6513 1N5062
3514 820K
3521 330R
3518 0R22
1.2V(1V)
0V(0.1V)
14.8V (12.6V)
2529 100n
10K 3537
7520 MC44603A
14.7V (12.1V)
3520 82K
2520 82p
0.2V (0V)
Rref
Vcc
18V
Vdem in
DEMAGNETICATION MANAGEMENT
Vref Iref
REFERENCE BLOCK
Vref enable
SUPPLY & INITIALIZATION BLOCK
UVLO1
Vdem out
Iref
Vosc prot
Sync
2531 1n
2.6V (2.6V)
OSCILLATOR
Vosc
Vc
3536 18K
2.5V (2.5V)
Rstandby
Set Q̄ Latch Reset
OUTPUT
BUFFER
GND
Iref
3532 6K8
2532 470p
0.7V (1.7V)
STANDBY (REDUCED FREQUENCY)
THERMAL SHUTDOWN
Vovp out
Vref Vcc
OVERVOLTAGE MANAGEMENT
2.5V
2.5V (2.5V)
VOLTAGE FEEDBACK
ERROR AMP
CURRENT SENSE
3534 15K
4501
2533 2n2
E/A OUT
OVERVOLTAGE PROTECTION
2.2V (1.8V)
2534 RES
2.9V (1.9V)
FOLDBACK
Dmax & SOFT-START CONTROL
UVLO1
Vref
Iref
FOLDBACK INPUT
CURRENT SENSE INPUT
Soft Start & Dmax
1.2V(1V)
2.4V (2.4V)
3516 1K
0.2V (0.1V)
2530 1u
3513 180K
3512 15K
9510
6540 BAV21
5540 4U7
2540 100u
15.6V
2521 3n3
2522 3n3
5521 2U2
3577 10K
3578 1K
2576
15.2V (13V)
2.2V (2.9V)
HOT GROUND
P1 ①
50V / div DC
5ms / div
① -V NORMAL OPERATION
(-V) STANDBY OPERATION
1 2 3 4 5 6 7
A B C D E F G H



8
9
10
11
A
B
C
D
E
F
G
H
VlotAux+11V
Reset
A7-1
1580
G5P
6584
1N4148
3594
22K
6591
BAS216
3595
68K
3598
10K
+VBATT
Vaux
13.6V
6585
0.2V
1N4148
7590
BC847B
7591
BC847B
0V
3596
10K
3597
100R
2586
220u
3543
220K
6542
BAV21
3545
33K
3547
1K
0.7V
3592
10K
2V
7592
BC847B
6543
BAS216
2541
3u3
3546
47K
11.4V(10.4)
7542
BC857B
2542
47u
13V
(13V)
0V
(0V)
3599
22K
3544
27K
NOT FOR USA
CRT_DISCHARGE
A3-49
A6-49
545
V8019
MRT
T1A
1571
*5575
100MHZ
5572
100MHZ
*1573
2.5A
MRT
*6580
SB140
*6570
EGP20DL
6590
EGP20DL
* 9509
*6582
EGP20DL
16.7V
AudioSupply
*2571
2m2
*2577
1m
10
11
12
13
14
15
16
17
18
*2572
100p
AudioSupplyGnd
140V (IF 5550 MOUNTED)
130V (IF 5576 MOUNTED)
+VBATT
*5550
100MHZ
*5576
100MHZ
2550
470p
6550
BY229X-800
5577
5551
27u
MainSupply
2551
47u
140V (IF 5550 MOUNTED)
130V (IF 5576 MOUNTED)
2562
220p
FOR CINCH ONLY
2565
1u
2564
1u
6560
EGP20DL
5573
100MHZ
MRT
T1A
1572
3508
33K
Vaux
11.5V
2561
2m2
7581
TCDT1101G
3585
100R
1
11V(0V)
2
10V (7.9V)
3576
RES
2575
100n
F1
TO F1A
A5
For ITV
0241
AudioSupply
Vaux
Vaux_1
+VBATT
3575
100R
2574
RES
*3571
160K
2573
33n
3574
33K
3573
2K0
3572
RES
VBATT
ADJ
3579
1K
*3570
12K
4999
For Testing
9.6V
(7.4V)
7570
TL431CLP
3 2.5V (2.5V)
6n8
2545
1n5
MainSupplyGnd
AudioSupplyGnd
= 0V
P1
P2
P2
50V / div DC
5ms / div
2V / div DC
10µs / div
2V / div DC
10µs / div
P3 15V DC
P3 12V DC
P4 138V DC
P4 138V DC
P5 11.8V DC
P5 9.8V DC
P6 16V DC
P6 13.8V DC
P7 8V DC
FOR ITEM NR.MARKED WITH
REFER TO DIVERSITY TABLE
CL 86532104_046.eps
010399

| | |
|---|---|
| F1 | E11 |
| 0211 | B1 |
| 0212 | A3 |
| 0213 | A4 |
| 0231 | B1 |
| 0241 | E11 |
| 1500 | B2 |
| 1571 | C8 |
| 1572 | E10 |
| 1573 | C9 |
| 1580 | A7 |
| 2500 | B3 |
| 2501 | B2 |
| 2502 | B4 |
| 2504 | A3 |
| 2505 | A4 |
| 2507 | C6 |
| 2508 | B5 |
| 2510 | C6 |
| 2511 | C6 |
| 2517 | C3 |
| 2518 | C5 |
| 2520 | E1 |
| 2521 | F5 |
| 2522 | G5 |
| 2524 | C3 |
| 2529 | D1 |
| 2530 | H4 |
| 2531 | F1 |
| 2532 | F1 |
| 2533 | G1 |
| 2534 | G1 |
| 2540 | F5 |
| 2541 | B9 |
| 2542 | B11 |
| 2545 | G7 |
| 2550 | D10 |
| 2551 | D11 |
| 2561 | E10 |
| 2562 | D8 |
| 2564 | D9 |
| 2565 | D9 |
| 2571 | C10 |
| 2572 | D8 |
| 2573 | F8 |
| 2574 | F8 |
| 2575 | E8 |
| 2576 | F7 |
| 2577 | C10 |
| 2586 | A9 |
| 3501 | B3 |
| 3502 | C1 |
| 3503 | A6 |
| 3505 | B3 |
| 3506 | C4 |
| 3507 | C4 |
| 3508 | D10 |
| 3509 | B6 |
| 3510 | C2 |
| 3511 | C6 |
| 3512 | H5 |
| 3513 | G5 |
| 3514 | D5 |
| 3515 | B5 |
| 3516 | H3 |
| 3517 | C4 |
| 3518 | D6 |
| 3520 | E1 |
| 3521 | D5 |
| 3525 | C3 |
| 3528 | D2 |
| 3529 | D1 |
| 3530 | C1 |
| 3532 | F1 |
| 3534 | G1 |
| 3536 | F1 |
| 3537 | E3 |
| 3542 | C1 |
| 3543 | B9 |
| 3544 | B9 |
| 3545 | B10 |
| 3546 | B10 |
| 3547 | A10 |
| 3570 | F9 |
| 3571 | F9 |
| 3572 | F10 |
| 3573 | F9 |
| 3574 | F8 |
| 3575 | F8 |
| 3576 | E8 |
| 3577 | F6 |
| 3578 | F7 |
| 3579 | F9 |
| 3585 | E9 |
| 3592 | B8 |
| 3594 | A8 |
| 3595 | A9 |
| 3596 | A8 |
| 3597 | A9 |
| 3598 | A9 |
| 3599 | B9 |
| 4501 | G1 |
| 4999 | F11 |
| 5500 | B3 |
| 5502 | B3 |
| 5516 | D7 |
| 5518 | C6 |
| 5521 | G5 |
| 5540 | E6 |
| 5545 | C7 |
| 5550 | D9 |
| 5551 | D11 |
| 5552 | C4 |
| 5572 | C9 |
| 5573 | E9 |
| 5575 | C8 |
| 5576 | D9 |
| 5577 | D10 |
| 6500 | B3 |
| 6501 | B3 |
| 6505 | B4 |
| 6507 | D4 |
| 6508 | D4 |
| 6510 | C2 |
| 6511 | C6 |
| 6512 | D6 |
| 6513 | D6 |
| 6514 | C4 |
| 6515 | B6 |
| 6517 | B6 |
| 6540 | E6 |
| 6542 | B9 |
| 6543 | B10 |
| 6550 | D10 |
| 6560 | D9 |
| 6570 | C10 |
| 6580 | C10 |
| 6582 | C11 |
| 6584 | A8 |
| 6585 | A8 |
| 6590 | C10 |
| 6591 | A8 |
| 7518 | C4 |
| 7520 | E2 |
| 7542 | B10 |
| 7570 | G8 |
| 7581 | E7 |
| 7590 | B8 |
| 7591 | B8 |
| 7592 | B9 |
| 9500 | B1 |
| 9501 | C1 |
| 9502 | B3 |
| 9503 | C3 |
| 9505 | C4 |
| 9506 | B5 |
| 9507 | B3 |
| 9508 | C3 |
| 9509 | C11 |
| 9510 | E5 |

## DIVERSITY TABLE FOR POWER SUPPLY

| DIVERSITY TABLE FOR ALL ITEM NO. MARKED WITH* | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ITEM | FR_CIS 25I/29I AP | LR USA | FR_NONCIS AP | HR 25I/29I EUROPE | HR_CIS 25I/29I AP | PS_FR_US | PS_FR_LA | HR 25I/29I CHINA | PS_FR NONCIS IND | ITV | 140V VBATT | 130V VBATT | 2X3w/5w AUDIO | 2X1w AUDIO | 1X AUD |
| 0231 | YES | --- | YES | YES | YES | --- | YES | YES | --- | YES | --- | --- | --- | --- | -- |
| 1571 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | T1.0A | T1 |
| 1573 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | T2.5A | --- | -- |
| 2501 | --- | --- | YES | --- | --- | --- | YES | --- | YES | --- | --- | --- | --- | --- | -- |
| 2508 | 330/400V | 470/200V | 330/400V | 220/400V | 220/400V | 330/400V | 330/400V | 220/450V | 330/450V | 220/400V | --- | --- | --- | --- | -- |
| 2561 | 3300u | 1000u | 3300u | 3300u | 3300u | 1000u | 3300u | 3300u | 3300u | --- | --- | --- | --- | --- | -- |
| 2571 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 2200/25V | --- | -- |
| 2572 | --- | 330p | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | -- |
| 2577 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1000/16V | 1000 |
| 3503 | 220V/9R | 110V/10R | 220V/9R | 220V/9R | 220V/9R | 220V/9R | 220V/9R | 220V/9R | --- | 220V/9R | --- | --- | --- | --- | -- |
| 3505 | YES | YES | --- | YES | YES | YES | --- | YES | --- | --- | --- | --- | --- | --- | -- |
| 3507 | --- | --- | --- | 2R2/5w | 2R2/5w | --- | --- | 2R2/5w | --- | 2R2/5w | --- | --- | --- | --- | -- |
| 3510 | 33K/3w | 33K/3w | 33K/3w | 68K/3w | 68K/3w | 33K/3w | 33K/3w | 68K/3w | 33K/3w | --- | --- | --- | --- | --- | -- |
| 3515 | NTC 2R5 | NTC 2R5 | NTC 2R5 | --- | --- | NTC 2R5 | NTC 2R5 | --- | NTC 2R5 | --- | --- | --- | --- | --- | -- |
| 3570 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 10K | 15K | --- | --- | -- |
| 3571 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 160K | 150K | --- | --- | -- |
| 5502 | DMF2810 | --- | --- | DMF2820 | DMF2820 | --- | --- | DMF2820 | --- | --- | --- | --- | --- | --- | -- |
| 5550 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | YES | --- | --- | --- | -- |
| 5575 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | YES | --- | -- |
| 5576 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | YES | --- | --- | -- |
| 6500 | --- | --- | BZX79-C30 | --- | --- | --- | BZX79-C30 | --- | BZX79-C30 | --- | --- | --- | --- | --- | -- |
| 6501 | --- | --- | BZX79-C30 | --- | --- | --- | BZX79-C30 | --- | BZX79-C30 | --- | --- | --- | --- | --- | -- |
| 6505 | GBU6JL | GBU6JL | GBU6JL | GBU4JL | GBU4JL | GBU6JL | GBU6JL | GBU4JL | GBU6JL | --- | --- | --- | --- | --- | -- |
| 6570 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | EGP20D | --- | -- |
| 6580 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | SB140 | BYV2 |
| 6582 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | EGP20D | --- | -- |
| 6590 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | EGP20D | --- | -- |
| 9500 | --- | YES | --- | --- | --- | YES | --- | --- | --- | --- | --- | --- | --- | --- | -- |
| 9501 | --- | YES | --- | --- | --- | YES | --- | --- | --- | --- | --- | --- | --- | --- | -- |
| 9502 | --- | YES | YES | --- | --- | YES | YES | --- | YES | --- | --- | --- | --- | --- | -- |
| 9503 | --- | YES | YES | --- | --- | YES | YES | --- | YES | --- | --- | --- | --- | --- | -- |
| 9505 | YES | YES | YES | --- | --- | YES | YES | --- | YES | --- | --- | --- | --- | --- | -- |
| 9506 | --- | --- | --- | YES | YES | --- | --- | YES | --- | YES | --- | --- | --- | --- | -- |
| 9509 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | YES | YE |

| | | |
|---|---|---|
| lw<br>IO | 2X2w<br>AUDIO | INDIA<br>SVBW006ER |
| | --- | --- |
| 0A | --- | --- |
| | T2.5A | T2.5A |
| | --- | --- |
| | --- | --- |
| | --- | --- |
| | 2200/25V | 2200/25V |
| | --- | --- |
| /16V | --- | --- |
| | --- | --- |
| | --- | --- |
| | --- | --- |
| | --- | --- |
| | --- | --- |
| | --- | --- |
| | --- | --- |
| | --- | --- |
| | --- | --- |
| | YES | YES |
| | --- | --- |
| | --- | --- |
| | --- | --- |
| | --- | --- |
| | --- | --- |
| -200 | --- | EGP20D |
| | EGP20 | EGP20 |
| | EGP20D | EGP20D |
| | --- | --- |
| | --- | --- |
| | --- | --- |
| | --- | --- |
| | --- | --- |
| | --- | --- |
| | --- | --- |

## DIVERSITY TABLE FOR HORIZONTAL DEFLECTION

| DIVERSITY TABLE FOR ALL ITEM NO. MARKED WITH * | | | | | | |
|---|---|---|---|---|---|---|
| ITEM | PHILIPS TUBE 25"/28" BLD EAST-WEST | HUA FEI TUBE 25" EAST-WEST | PHILIPS TUBE 25"/28" BLS EAST-WEST | PHILIPS TUBE 25V (26") NO EAST-WEST | PHILIPS TUBE 27V (29") NO EAST-WEST | PHILIPS TUBE 27V (29") EAST-WEST |
| 2451 | 15n | 15n | 15n | 15n | 15n | 15n/ 12n China |
| 2457 | 390n | 390n | 390n | 390n | 390n | 360n |
| 2463 | 1n | 1n | 820p | 470p | 680p | 820p/1n China |
| 2464 | --- | --- | --- | --- | --- | 2u2 |
| 2465 | 9n1 | 9n1 | 9n1 | 10n | 10n | 10n |
| 2466 | 10n | 10n | 10n | --- | --- | --- |
| 2467 | --- | --- | --- | --- | --- | 22n |
| 2468 | 18n | 18n | 18n | --- | --- | 33n |
| 2470 | 470p | 470p | 470p | --- | --- | 470p |
| 2471 | 470n | 470n | 470n | --- | --- | --- |
| 2472 | 2u2 | 2u2 | 2u2 | --- | --- | 2u2 |
| 2473 | 47u | 47u | 47u | --- | --- | 47u |
| 2475 | 560n | 560n | 510n | --- | --- | --- |
| 425 (A4) | 56k | 56k | 56k | 150k | 120k | 150k |
| 3452 | 33R | 33R | 33R | 22R | 22R | 22R |
| 3453 | --- | --- | --- | 4R7 | 4R7 | --- |
| 3470 | 33k | 33k | 33k | --- | --- | 33k |
| 3471 | 220k | 220k | 220k | --- | --- | --- |
| 3472 | 100k | 100k | 120k | --- | --- | 82k |
| 3473 | 1k | 1k | 1k | --- | --- | 1k |
| 3474 | 3R3 | 3R3 | 3R3 | --- | --- | 4R7 |
| 3475 | 3R3 | 3R3 | 3R3 | --- | --- | 4R7 |
| 3477 | 100R | 100R | 100R | --- | --- | 100R |
| 3479 | 330R | 330R | 330R | --- | --- | 330R |
| 3481/82 | Refer to | part list | videocontrol | Depends on | country. | |
| 5445 | 242253102325 | 312813820681 | 242253102324 | 242253102326 | 242253102326 | 242253102326 |
| | | | | USA:242253102327 China:312813820691 | | |
| 5451 | 33uH | 33uH | 33uH | 27uH | 27uH | 27uH |
| 5457 | 312813853111 | 312813853111 | 312813853111 | 312813853241 | 312813853241 | 312813853241 |
| 5463 | --- | --- | --- | --- | --- | 312813834021 |
| 5465 | 312813834011 | 312813834011 | 312813834011 | --- | --- | --- |
| 5470 | 311233830531 | 311233830531 | 311233830531 | --- | --- | --- |
| 5471 | --- | --- | --- | --- | --- | 1mH |
| 5480 | 33uH | 56uH | 33uH | 27uH | 27uH | 27uH/47uH China |
| 6461 | BYW95C/20 | BYW95C/20 | BYW95C/20 | --- | --- | BYW95C/20 |
| 6470 | BZX79-C9V1 | BZX79-C9V1 | BZX79-C9V1 | --- | --- | BZX79-C9V1 |
| 6471 | 1N4148 | 1N4148 | 1N4148 | --- | --- | --- |
| 6472 | 1N4148 | 1N4148 | 1N4148 | --- | --- | 1N4148 |
| 6473 | BZX79-C39 | BZX79-C39 | BZX79-C39 | --- | --- | --- |
| 7470 | STP16NE | STP16NE | STP16NE | --- | --- | STP16NE |
| 9453 | YES | YES | YES | --- | --- | YES |
| 9460 | --- | --- | --- | YES | YES | YES |
| 9461 | --- | --- | --- | YES | YES | --- |
| 9462 | YES | YES | YES | --- | --- | --- |
| 9463 | --- | --- | --- | --- | --- | YES |
| 9464 | YES | YES | YES | --- | --- | --- |

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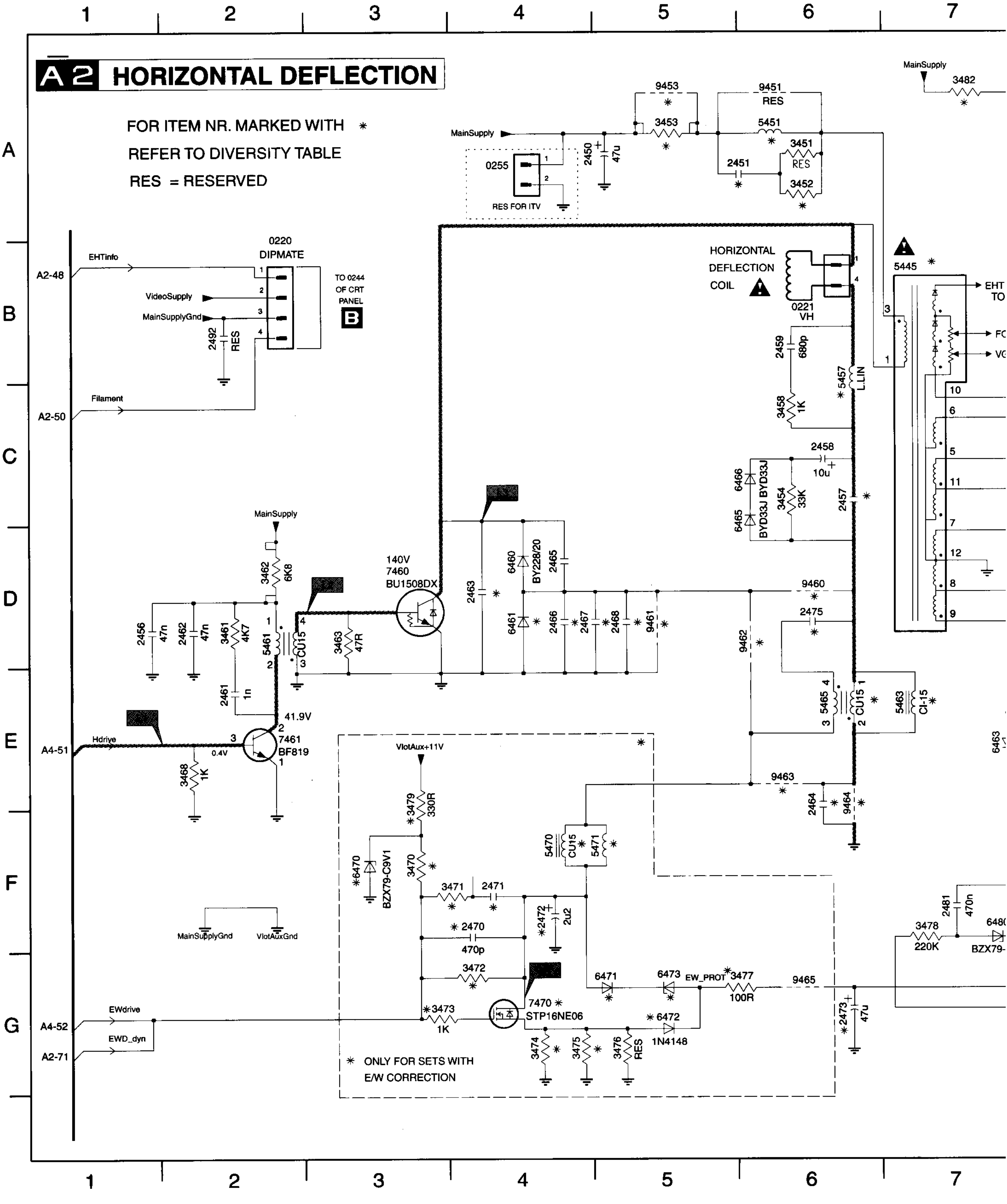
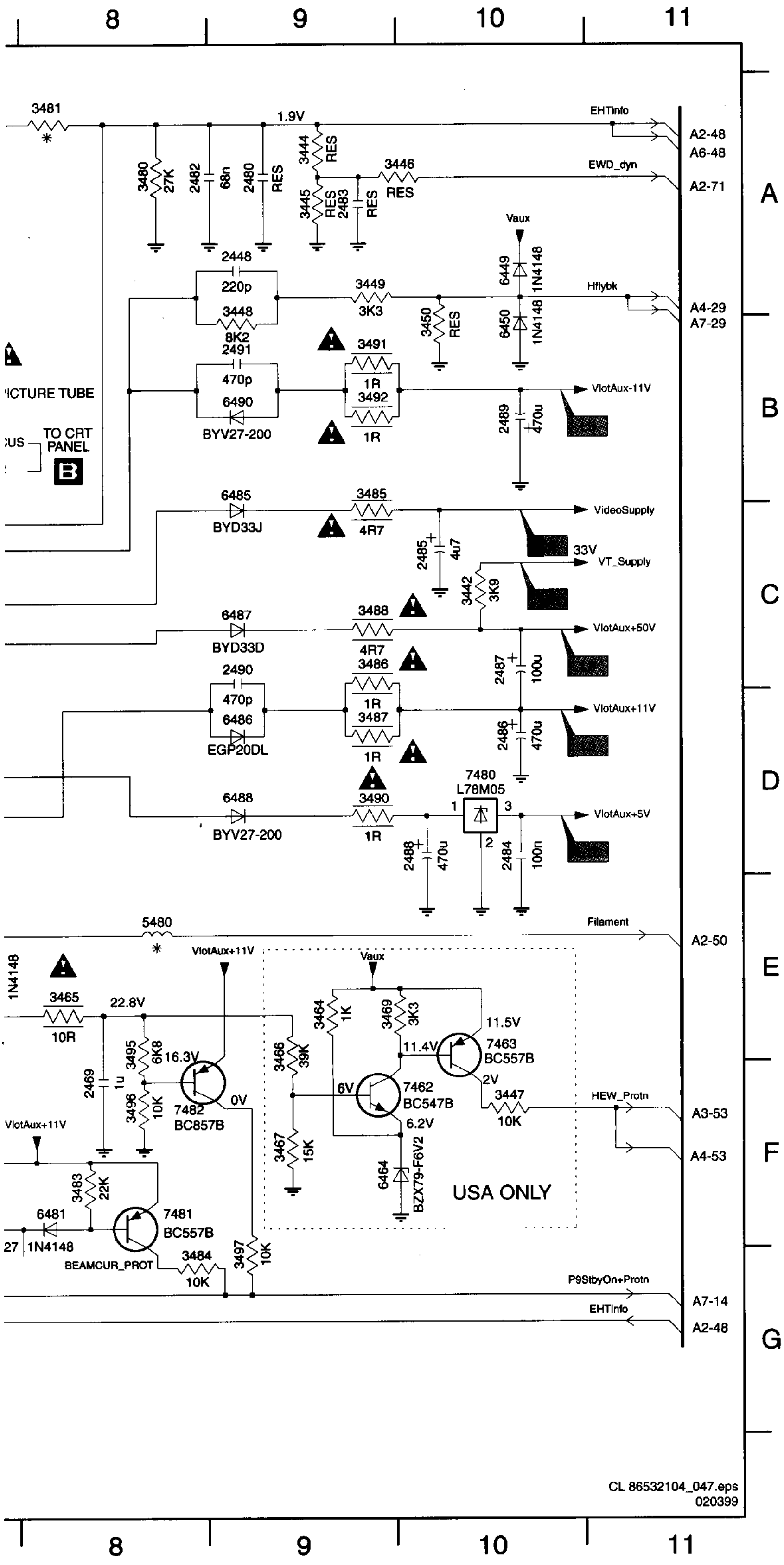

1
2
3
4
5
6
7
A
B
C
D
E
F
G
A2 HORIZONTAL DEFLECTION
FOR ITEM NR. MARKED WITH *
REFER TO DIVERSITY TABLE
RES = RESERVED
MainSupply
9453
9451
RES
3453
5451
3451
RES
2451
3452
2450
47u
0255
RES FOR ITV
3482
HORIZONTAL
DEFLECTION
COIL
0221
VH
5445
EHT
TO
FO
VG
2459
680p
5457
LLIN
3458
1K
2458
10u
6466
6465
BYD33J
BYD33J
3454
33K
2457
10
6
5
11
7
12
8
9
EHTinfo
A2-48
0220
DIPMATE
VideoSupply
MainSupplyGnd
2492
RES
TO 0244
OF CRT
PANEL
B
Filament
A2-50
MainSupply
3462
6K8
2456
47n
2462
47n
3461
4K7
5461
CU15
3463
47R
2461
1n
140V
7460
BU1508DX
2463
6460
BY228/20
2465
6461
2466
2467
2468
9461
9460
2475
9462
5465
CU15
5463
CI-15
41.9V
Hdrive
A4-51
0.4V
3468
1K
7461
BF819
VlotAux+11V
3479
330R
6470
BZX79-C9V1
3470
3471
2471
2470
470p
2472
2u2
3472
5470
CU15
5471
9463
2464
9464
MainSupplyGnd
VlotAuxGnd
6471
6473
EW_PROT
3477
100R
9465
2473
47u
EWdrive
A4-52
EWD_dyn
A2-71
3473
1K
7470
STP16NE06
6472
1N4148
3474
3475
3476
RES
* ONLY FOR SETS WITH
E/W CORRECTION
2481
470n
3478
220K
6480
BZX79-
6463


8
9
10
11
3481
1.9V
3480 27K
2482 68n
2480 RES
3444 RES
3445 RES
2483 RES
3446 RES
EHTinfo
A2-48
A6-48
EWD_dyn
A2-71
Vaux
2448 220p
3448 8K2
2491 470p
6490 BYV27-200
3449 3K3
3450 RES
6449 1N4148
6450 1N4148
Hflybk
A4-29
A7-29
3491 1R
3492 1R
2489 470u
VlotAux-11V
PICTURE TUBE
TO CRT PANEL
B
6485 BYD33J
3485 4R7
2485 4u7
VideoSupply
33V
VT_Supply
3442 3K9
6487 BYD33D
3488 4R7
2487 100u
VlotAux+50V
2490 470p
6486 EGP20DL
3486 1R
3487 1R
2486 470u
VlotAux+11V
7480 L78M05
6488 BYV27-200
3490 1R
2488 470u
2484 100n
VlotAux+5V
5480
Filament
A2-50
1N4148
3465 10R
22.8V
VlotAux+11V
3495 6K8
16.3V
2469 1u
3496 10K
7482 BC857B
0V
Vaux
3466 39K
3467 15K
3464 1K
3469 3K3
11.4V
6V
7462 BC547B
6.2V
6464 BZX79-F6V2
11.5V
7463 BC557B
2V
3447 10K
HEW_Protn
A3-53
A4-53
USA ONLY
VlotAux+11V
3483 22K
6481 1N4148
7481 BC557B
BEAMCUR_PROT
3484 10K
3497 10K
P9StbyOn+Protn
A7-14
EHTInfo
A2-48
A
B
C
D
E
F
G

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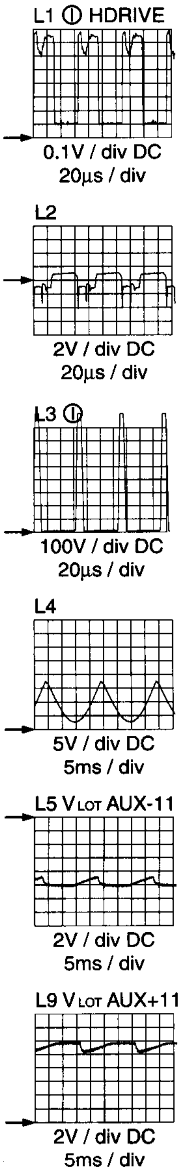
|  |  |
|---|---|
| 0220 | B2 |
| 0221 | B6 |
| 0255 | A4 |
| 2448 | A9 |
| 2450 | A5 |
| 2451 | A6 |
| 2456 | D1 |
| 2457 | C6 |
| 2458 | C6 |
| 2459 | B6 |
| 2461 | E2 |
| 2462 | D2 |
| 2463 | D4 |
| 2464 | E6 |
| 2465 | D4 |
| 2466 | D4 |
| 2467 | D5 |
| 2468 | D5 |
| 2469 | F8 |
| 2470 | F4 |
| 2471 | F4 |
| 2472 | F4 |
| 2473 | G6 |
| 2475 | D6 |
| 2480 | A9 |
| 2481 | F7 |
| 2482 | A9 |
| 2483 | A9 |
| 2484 | D10 |
| 2485 | C10 |
| 2486 | D10 |
| 2487 | C10 |
| 2488 | D10 |
| 2489 | B10 |
| 2490 | C9 |
| 2491 | B9 |
| 2492 | B2 |
| 3442 | C10 |
| 3444 | A9 |
| 3445 | A9 |
| 3446 | A10 |
| 3447 | F10 |
| 3448 | A9 |
| 3449 | A9 |
| 3450 | B10 |
| 3451 | A6 |
| 3452 | A6 |
| 3453 | A5 |
| 3454 | C6 |
| 3458 | C6 |
| 3461 | D2 |
| 3462 | D2 |
| 3463 | D3 |
| 3464 | E9 |
| 3465 | E8 |
| 3466 | E9 |
| 3467 | F9 |
| 3468 | E2 |
| 3469 | E10 |
| 3470 | F3 |
| 3471 | F4 |
| 3472 | G4 |
| 3473 | G4 |
| 3474 | G4 |
| 3475 | G4 |
| 3476 | G5 |
| 3477 | G6 |
| 3478 | F7 |
| 3479 | E3 |
| 3480 | A8 |
| 3481 | A8 |
| 3482 | A7 |
| 3483 | F8 |
| 3484 | G9 |
| 3485 | B9 |
| 3486 | C9 |
| 3487 | D9 |
| 3488 | C9 |
| 3490 | D9 |
| 3491 | B9 |
| 3492 | B9 |
| 3495 | E8 |
| 3496 | F8 |
| 3497 | G9 |
| 5445 | B7 |
| 5451 | A6 |
| 5457 | B6 |
| 5461 | D2 |
| 5463 | E7 |
| 5465 | E6 |
| 5470 | F4 |
| 5471 | F5 |
| 5480 | E8 |
| 6449 | A10 |
| 6450 | B10 |
| 6460 | D4 |
| 6461 | D4 |
| 6463 | E7 |
| 6464 | F10 |
| 6465 | C6 |
| 6466 | C6 |
| 6470 | F3 |
| 6471 | G5 |
| 6472 | G5 |
| 6473 | G5 |
| 6480 | F7 |
| 6481 | F8 |
| 6485 | B9 |
| 6486 | D9 |
| 6487 | C9 |
| 6488 | D9 |
| 6490 | B9 |
| 7460 | D3 |
| 7461 | E2 |
| 7462 | F10 |
| 7463 | E10 |
| 7470 | G4 |
| 7480 | D10 |
| 7481 | F8 |
| 7482 | F8 |
| 9451 | A6 |
| 9453 | A5 |
| 9460 | D6 |
| 9461 | D5 |
| 9462 | D6 |
| 9463 | E6 |
| 9464 | E6 |
| 9465 | G6 |



L1 ⏻ 0.3V DC

L3 ⏻ 138V DC

L6 190 V DC

L7 Ⓘ 32.5V DC

L7 ⏻ 28V DC

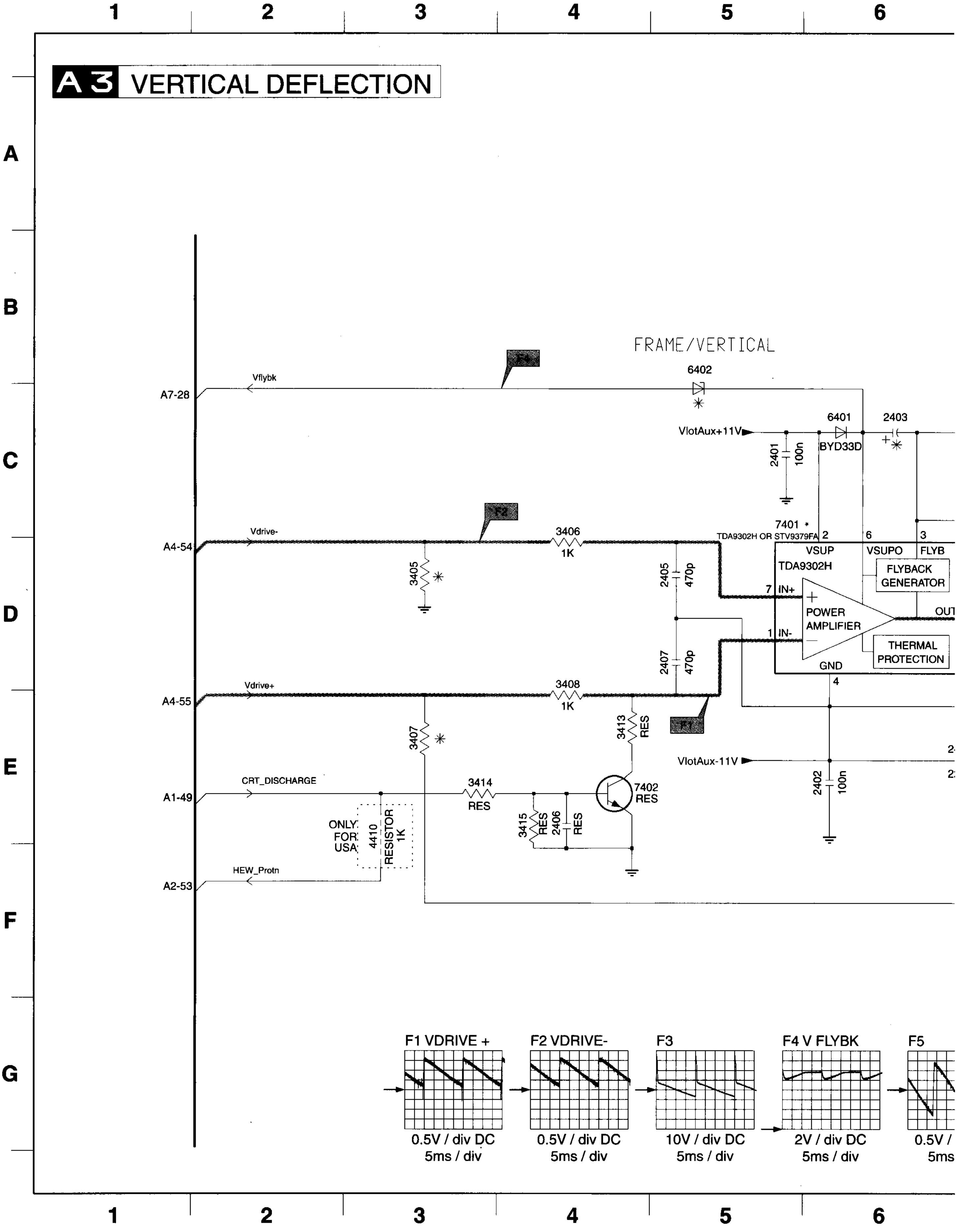
L8 Ⓘ 46V DC

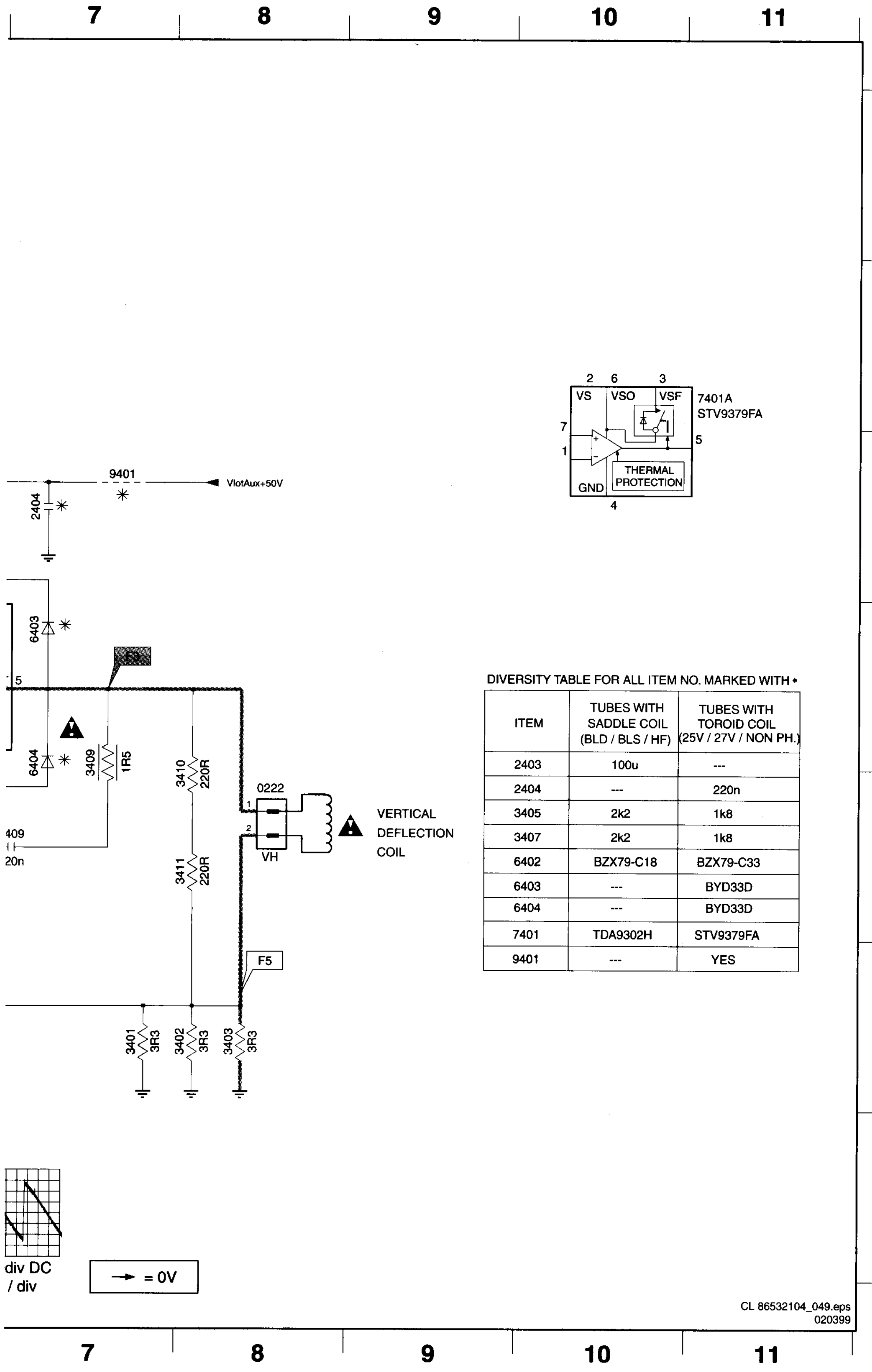
L8 ⏻ 30V DC

L10 5V DC

→ = 0V

# A3 VERTICAL DEFLECTION


1
2
3
4
5
6
A
B
C
D
E
F
G
FRAME/VERTICAL
F4
Vflybk
A7-28
6402
VlotAux+11V
6401
BYD33D
2403
2401
100n
F2
Vdrive-
A4-54
3406
1K
3405
2405
470p
7401
TDA9302H OR STV9379FA
2
6
3
VSUP
VSUPO
FLYB
TDA9302H
FLYBACK GENERATOR
7
IN+
POWER AMPLIFIER
OUT
1
IN-
THERMAL PROTECTION
GND
4
2407
470p
Vdrive+
A4-55
3408
1K
3413
RES
F1
3407
VlotAux-11V
2402
100n
CRT_DISCHARGE
A1-49
3414
RES
7402
RES
3415
RES
2406
RES
ONLY FOR USA
4410
RESISTOR 1K
HEW_Protn
A2-53
F1 VDRIVE +
0.5V / div DC
5ms / div
F2 VDRIVE-
0.5V / div DC
5ms / div
F3
10V / div DC
5ms / div
F4 V FLYBK
2V / div DC
5ms / div
F5
0.5V /
5ms


7
8
9
10
11
A
B
C
D
E
F
G
2
6
3
VS
VSO
VSF
7401A
STV9379FA
7
1
5
+
−
THERMAL
PROTECTION
GND
4
9401
VlotAux+50V
2404
6403
6404
F3
5
3409
1R5
3410
220R
3411
220R
0222
1
2
VH
VERTICAL
DEFLECTION
COIL
409
20n
F5
3401
3R3
3402
3R3
3403
3R3
div DC
/ div
= 0V

DIVERSITY TABLE FOR ALL ITEM NO. MARKED WITH *

| ITEM | TUBES WITH SADDLE COIL (BLD / BLS / HF) | TUBES WITH TOROID COIL (25V / 27V / NON PH.) |
|---|---|---|
| 2403 | 100u | --- |
| 2404 | --- | 220n |
| 3405 | 2k2 | 1k8 |
| 3407 | 2k2 | 1k8 |
| 6402 | BZX79-C18 | BZX79-C33 |
| 6403 | --- | BYD33D |
| 6404 | --- | BYD33D |
| 7401 | TDA9302H | STV9379FA |
| 9401 | --- | YES |

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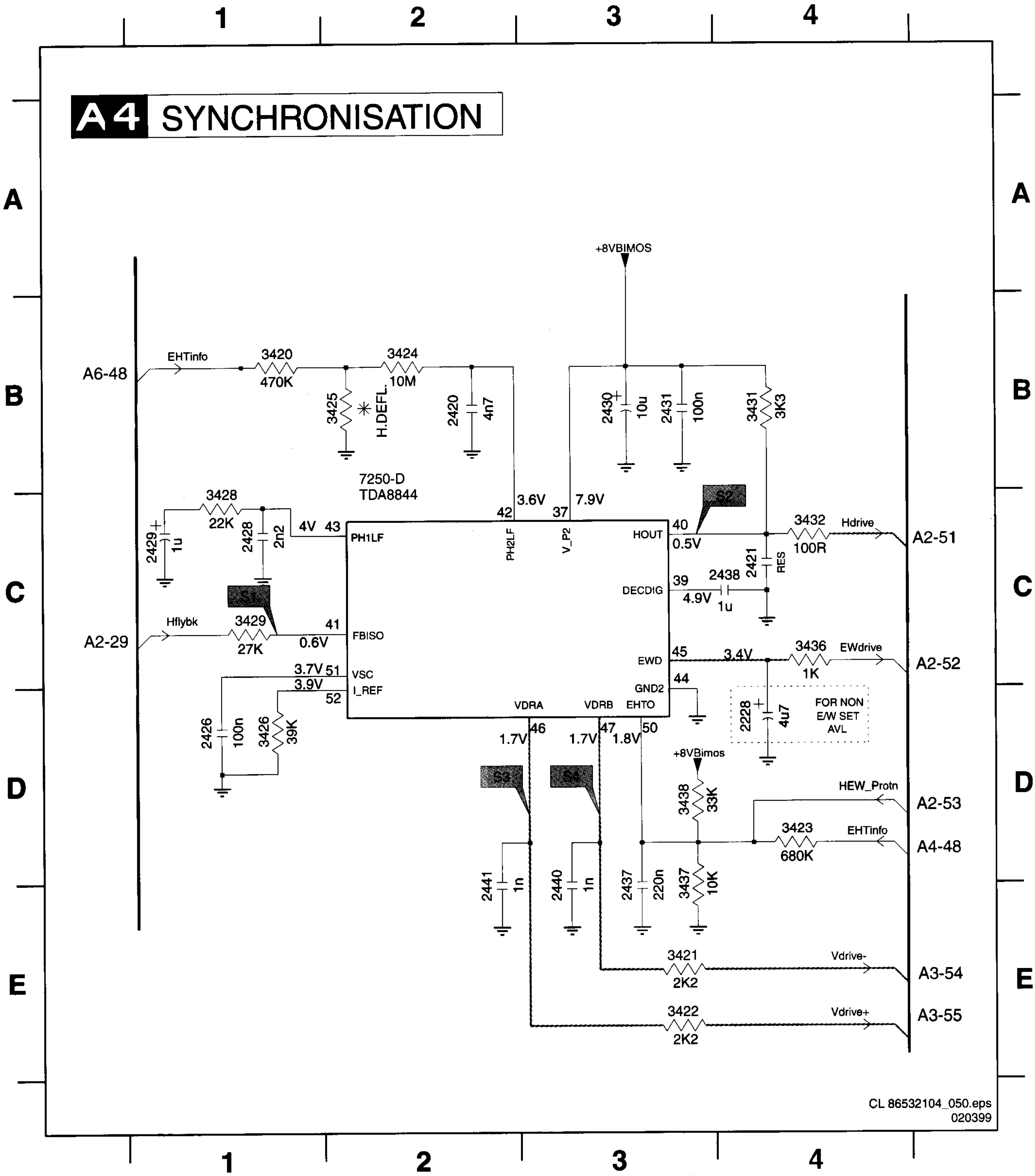
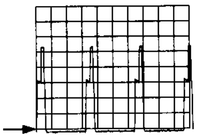
| | |
|---|---|
| 0222 | E8 |
| 2401 | C5 |
| 2402 | E6 |
| 2403 | C6 |
| 2404 | C7 |
| 2405 | D5 |
| 2406 | E4 |
| 2407 | D5 |
| 2409 | E7 |
| 3401 | F7 |
| 3402 | F8 |
| 3403 | F8 |
| 3405 | D3 |
| 3406 | C4 |
| 3407 | E3 |
| 3408 | D4 |
| 3409 | D7 |
| 3410 | E8 |
| 3411 | E8 |
| 3413 | E4 |
| 3414 | E3 |
| 3415 | E4 |
| 4410 | E3 |
| 6401 | C6 |
| 6402 | B5 |
| 6403 | D7 |
| 6404 | D7 |
| 7401 | C5 |
| 7401A | B11 |
| 7402 | E4 |
| 9401 | C7 |

| | |
|---|---|
| 2228 | D4 |
| 2420 | B2 |
| 2421 | C4 |
| 2426 | D1 |
| 2428 | C1 |
| 2429 | C1 |
| 2430 | B3 |
| 2431 | B3 |
| 2437 | E3 |
| 2438 | C4 |
| 2440 | E3 |
| 2441 | E2 |
| 3420 | B1 |
| 3421 | E3 |
| 3422 | E3 |
| 3423 | D4 |
| 3424 | B2 |
| 3425 | B2 |
| 3426 | D1 |
| 3428 | C1 |
| 3429 | C1 |
| 3431 | B4 |
| 3432 | C4 |
| 3436 | C4 |
| 3437 | E3 |
| 3438 | D3 |
| 7250-D | B2 |

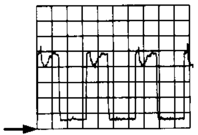

1
2
3
4
A
B
C
D
E
A4 SYNCHRONISATION
+8VBIMOS
A6-48
EHTinfo
3420
470K
3424
10M
3425
H.DEFL.
2420
4n7
2430
10u
2431
100n
3431
3K3
7250-D
TDA8844
3428
22K
2429
1u
2428
2n2
4V 43
42
3.6V
37
7.9V
S2
PH1LF
PH2LF
V_P2
HOUT
40
0.5V
3432
100R
Hdrive
A2-51
2421
RES
2438
1u
DECDIG
39
4.9V
S1
Hflybk
A2-29
3429
27K
41
0.6V
FBISO
EWD
45
3.4V
3436
1K
EWdrive
A2-52
3.7V 51
VSC
3.9V
I_REF
52
GND2
44
2228
4u7
FOR NON E/W SET AVL
VDRA
VDRB
EHTO
2426
100n
3426
39K
46
1.7V
47
1.7V
1.8V
50
+8VBimos
S3
S4
3438
33K
HEW_Protn
A2-53
3423
680K
EHTinfo
A4-48
2441
1n
2440
1n
2437
220n
3437
10K
3421
2K2
Vdrive-
A3-54
3422
2K2
Vdrive+
A3-55
CL 86532104_050.eps
020399

S1 H FLYBK



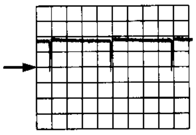
1V / div DC
20us / div

S2 HDRIVE



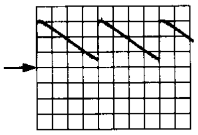
0.2V / div DC
20us / div

S3 VDRIVE+



1V / div DC
5ms / div

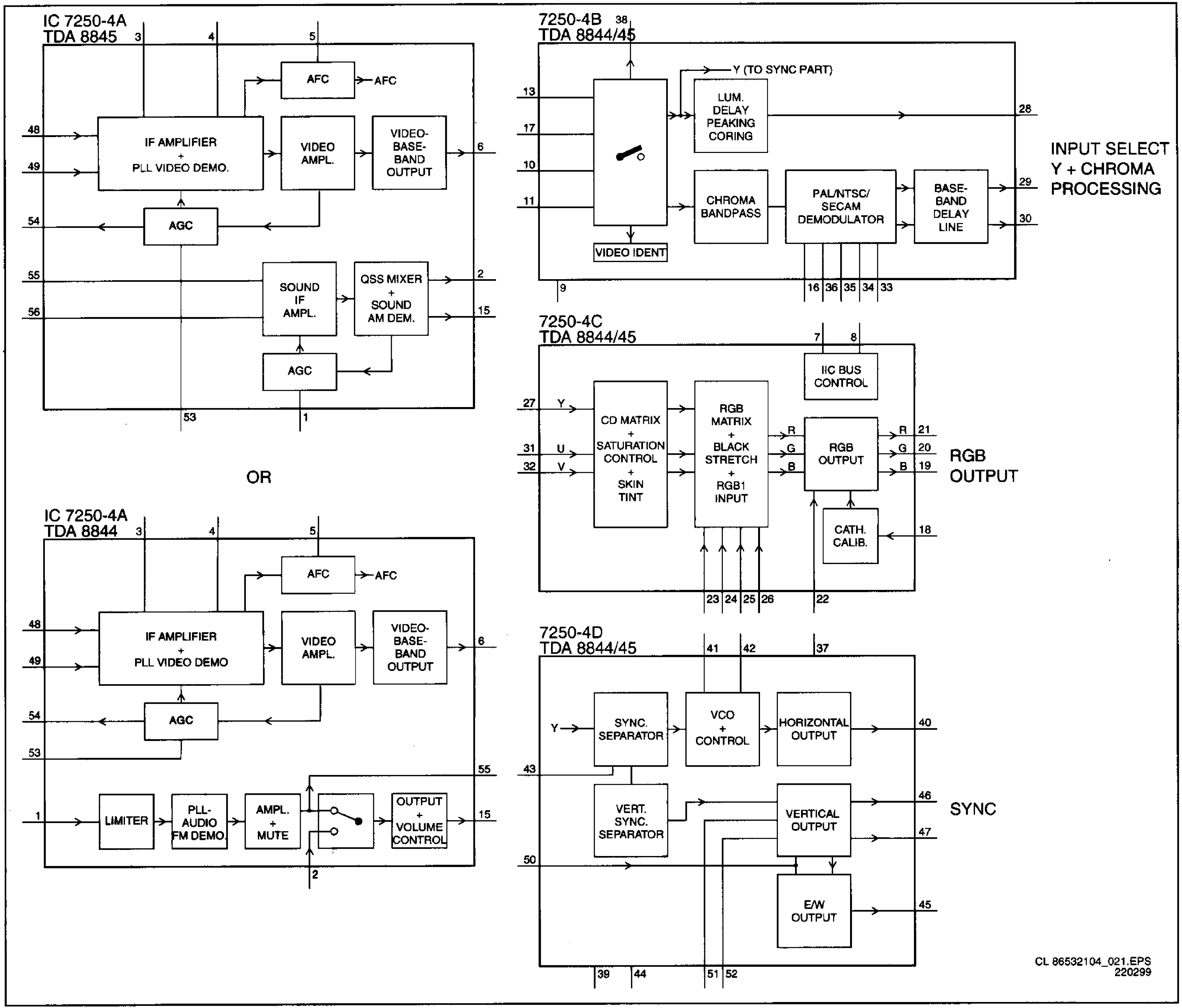
S4 VDRIVE-



1V / div DC
5ms / div

→ = 0V

OSC_A4.EPS


IC 7250-4A
TDA 8845
3
4
5
AFC
AFC
48
49
IF AMPLIFIER
+
PLL VIDEO DEMO.
VIDEO AMPL.
VIDEO-BASE-BAND OUTPUT
6
54
AGC
55
56
SOUND IF AMPL.
QSS MIXER
+
SOUND AM DEM.
2
15
AGC
53
1
OR
IC 7250-4A
TDA 8844
3
4
5
AFC
AFC
48
49
IF AMPLIFIER
+
PLL VIDEO DEMO
VIDEO AMPL.
VIDEO-BASE-BAND OUTPUT
6
54
AGC
53
55
1
LIMITER
PLL-AUDIO FM DEMO.
AMPL.
+
MUTE
OUTPUT
+
VOLUME CONTROL
15
2
7250-4B
TDA 8844/45
38
Y (TO SYNC PART)
13
17
10
11
LUM. DELAY PEAKING CORING
28
CHROMA BANDPASS
PAL/NTSC/ SECAM DEMODULATOR
BASE-BAND DELAY LINE
29
30
VIDEO IDENT
9
16
36
35
34
33
INPUT SELECT
Y + CHROMA
PROCESSING
7250-4C
TDA 8844/45
7
8
IIC BUS CONTROL
27
Y
31
U
32
V
CD MATRIX
+
SATURATION CONTROL
+
SKIN TINT
RGB MATRIX
+
BLACK STRETCH
+
RGB1 INPUT
R
G
B
RGB OUTPUT
R
21
G
20
B
19
RGB
OUTPUT
CATH. CALIB.
18
23
24
25
26
22
7250-4D
TDA 8844/45
41
42
37
Y
SYNC. SEPARATOR
VCO
+
CONTROL
HORIZONTAL OUTPUT
40
43
VERT. SYNC. SEPARATOR
VERTICAL OUTPUT
46
47
SYNC
50
E/W OUTPUT
45
39
44
51
52

CL 86532104_021.EPS
220299